

**State of Missouri
Department of Natural Resources**

ALPD/HWP/FFS

**STANDARD LEVEL IV
REPORT OF ANALYSIS**

WORK ORDER #05-08094-OR

September 14, 2005

**EBERLINE SERVICES/OAK RIDGE LABORATORY
OAK RIDGE, TN**

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**EBERLINE**
SERVICES**STANDARD OPERATING PROCEDURE**

Sample Receiving

MP-001, Rev. 7
Effective: 10/31/03
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Eberline Services – Oak Ridge Laboratory

LABORATORY DATA SUPPORT CHECKLIST
MP-001-3Eberline Services Work Order # 05-08094

The checklist items listed below are to be initialed by appropriate staff upon completion/verification.

Date for Partial	Initials	Date	Initials	Checklist Items
		8/19/05	ICAB	Sample Log-In
		9/16/05	CAF	Data Compilation
		9/17/05	NA	Technical Data Review
		9/9/05	[Signature]	Data Entry/Electronic Deliverable
		9/9/05	[Signature]	Case Narrative
		9/14/05	JO	Electronic Deliverable Proof
		9/14/05	Q.N.	Samples Analyzed within Holding Time YES
		9/14/05	Q.N.	QA/QC Review
				Invoiced by Laboratory

Technical/Clerical Corrections, Signatures Needed, Problems, Etc	Date/Initials

Date package approved by:

Laboratory Manager
Date

Copy No. _____

Radiochemical Services

SECTION I
CHAIN OF CUSTODY



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

RECEIVED
AUG 19 2005

05-08094

Collector's Name (Please Print): Darrick Steen		Description of Shipment				
Affiliation (Division/Program/Section): ALPD/HWP/FFS		No. of Containers: 40				
<input checked="" type="checkbox"/> Shipped <input checked="" type="checkbox"/> Initialed <input checked="" type="checkbox"/> Hand Delivered						
Sample Number	Sample Collected	Analyses	Sample Type	Matrix	Container	Preserved
VPSCR081705SL01	Date: 08/17/05 Time: 10:02 AM	Iso Th, Iso U, Ra ₂₂₆ pH Temp. Spec. Cond. D.O. Flow Other:	X Grab Composite Modified Other:	Water Soil Organic Sludge Other:	1L amber Cubittainer 2 oz glass 8 oz glass VOA vial Encore Other:	H ₂ SO ₄ HNO ₃ NAOH HCL None Disinfected
For Lab Use Only						
VPSCR081705SL02	Date: 08/17/05 Time: 10:04 AM	Iso Th, Iso U, Ra ₂₂₆ pH Temp. Spec. Cond. D.O. Flow Other:	X Grab Composite Modified Other:	Water Soil Organic Sludge Other:	1L amber Cubittainer 2 oz glass 8 oz glass VOA vial Encore Other:	H ₂ SO ₄ HNO ₃ NAOH HCL None Disinfected
For Lab Use Only						
VPSCR081705SL03	Date: 08/17/05 Time: 10:08 AM	Iso Th, Iso U, Ra ₂₂₆ pH Temp. Spec. Cond. D.O. Flow Other:	X Grab Composite Modified Other:	Water Soil Organic Sludge Other:	1L amber Cubittainer 2 oz glass 8 oz glass VOA vial Encore Other:	H ₂ SO ₄ HNO ₃ NAOH HCL None Disinfected
For Lab Use Only						
VPSCR081705SL04	Date: 08/17/05 Time: 10:09 AM	Iso Th, Iso U, Ra ₂₂₆ pH Temp. Spec. Cond. D.O. Flow Other:	X Grab Composite Modified Other:	Water Soil Organic Sludge Other:	1L amber Cubittainer 2 oz glass 8 oz glass VOA vial Encore Other:	H ₂ SO ₄ HNO ₃ NAOH HCL None Disinfected
For Lab Use Only						
Relinquished By:	<i>Darrick Steen</i>	Received By:	<i>Eric Hiltrop</i>	Date:	8/18/05	Time: 2:00 PM
Relinquished By:	<i>Eric Hiltrop</i>	Received By:	<i>D. Barnier</i>	Date:	8/19/05	Time: 0900
Relinquished By:		Received By:		Date:		Time:



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

05-08094

Collector's Name (Please Print): Darrick Steen		Description of Shipment	
Affiliation (Division/Program/Section): ALPD/HWP/FFS		No. Of Containers: 40	
Sample Number	Sample Collected	Analyses	Sample Type
VPSCR081705SL05	Date: 08/17/05 Time: 10:11 AM	Iso Th, Iso U, Ra ₂₂₆ pH Temp. Spec. Cond. D.O. Flow Other:	X Grab Composite Modified Other:
For Lab Use Only			Water Soil Organic Sludge Other: X
VPSCR081705SL06	Date: 08/17/05 Time: 10:18 AM	Iso Th, Iso U, Ra ₂₂₆ pH Temp. Spec. Cond. D.O. Flow Other:	X Grab Composite Modified Other:
For Lab Use Only			Water Soil Organic Sludge Other: X
VPSCR081705SL07	Date: 08/17/05 Time: 10:20 AM	Iso Th, Iso U, Ra ₂₂₆ pH Temp. Spec. Cond. D.O. Flow Other:	X Grab Composite Modified Other:
For Lab Use Only			Water Soil Organic Sludge Other: X
VPSCR081705SL08	Date: 08/17/05 Time: 10:21 AM	Iso Th, Iso U, Ra ₂₂₆ pH Temp. Spec. Cond. D.O. Flow Other:	X Grab Composite Modified Other:
For Lab Use Only			Water Soil Organic Sludge Other: X
Relinquished By: <i>Darrick Steen</i>	Received By: <i>Eme Diltrop</i>	Date: 8/18/05	Time: 2:00 PM
Relinquished By: <i>Eme Diltrop</i>	Received By: <i>K Sammis</i>	Date: 8/19/05	Time: 0900
Relinquished By: <i>006</i>	Received By:	Date:	Time:

RECEIVED

AUG 19 2005

X Shipped Carrier UPS
X Tape sealed and initialed
Hand Delivered

For Lab Use Only

Container

Matrix

Sample Type

Analyses

Sample Collected

Sample Number

For Lab Use Only

VPSCR081705SL05

Date: 08/17/05

Time: 10:11 AM

Iso Th, Iso U, Ra₂₂₆

pH Temp. Spec. Cond. D.O. Flow Other:

X Grab Composite Modified Other:

Water Soil Organic Sludge Other: X

For Lab Use Only

VPSCR081705SL06

Date: 08/17/05

Time: 10:18 AM

Iso Th, Iso U, Ra₂₂₆

pH Temp. Spec. Cond. D.O. Flow Other:

X Grab Composite Modified Other:

Water Soil Organic Sludge Other: X

For Lab Use Only

VPSCR081705SL07

Date: 08/17/05

Time: 10:20 AM

Iso Th, Iso U, Ra₂₂₆

pH Temp. Spec. Cond. D.O. Flow Other:

X Grab Composite Modified Other:

Water Soil Organic Sludge Other: X

For Lab Use Only

VPSCR081705SL08

Date: 08/17/05

Time: 10:21 AM

Iso Th, Iso U, Ra₂₂₆

pH Temp. Spec. Cond. D.O. Flow Other:

X Grab Composite Modified Other:

Water Soil Organic Sludge Other: X

Relinquished By: *Darrick Steen*

Received By: *Eme Diltrop*

Date: 8/18/05

Time: 2:00 PM

Relinquished By: *Eme Diltrop*

Received By: *K Sammis*

Date: 8/19/05

Time: 0900

Relinquished By: *006*

Received By:

Date:

Time:



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

05-08094

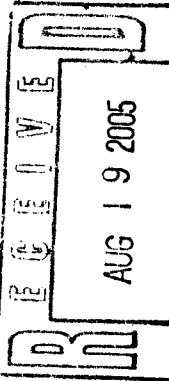
RECEIVED
AUG 19 2005

Collector's Name (Please Print): Darrick Steen		Description of Shipment				
Affiliation (Division/Program/Section): ALPD/HWP/FFS		No. of Containers: 40				
<input checked="" type="checkbox"/> Shipped Carrier UPS		<input checked="" type="checkbox"/> Tape sealed and initialed				
<input checked="" type="checkbox"/> Hand Delivered						
Sample Number	Sample Collected	Analyses	Sample Type	Matrix	Container	Preserved
VPSCR081705SL09	Date: 08/17/05 Time: 10:23 AM	Iso Th, Iso U, Ra ₂₂₆	X Grab Composite Modified Other:	Water Soil Organic Sludge Other:	1L amber Cubittainer 2 oz glass 8 oz glass VOA vial Encore Other:	H ₂ SO ₄ HNO ₃ NAOH HCL None Disinfected
For Lab Use Only					X	
VPSCR081705SL10	Date: 08/17/05 Time: 10:25 AM	Iso Th, Iso U, Ra ₂₂₆	X Grab Composite Modified Other:	Water Soil Organic Sludge Other:	1L amber Cubittainer 2 oz glass 8 oz glass VOA vial Encore Other:	H ₂ SO ₄ HNO ₃ NAOH HCL None Disinfected
For Lab Use Only					X	
VPSCR081705SL11	Date: 08/17/05 Time: 10:27 AM	Iso Th, Iso U, Ra ₂₂₆	X Grab Composite Modified Other:	Water Soil Organic Sludge Other:	1L amber Cubittainer 2 oz glass 8 oz glass VOA vial Encore Other:	H ₂ SO ₄ HNO ₃ NAOH HCL None Disinfected
For Lab Use Only					X	
VPSCR081705SL12	Date: 08/17/05 Time: 10:30 AM	Iso Th, Iso U, Ra ₂₂₆	X Grab Composite Modified Other:	Water Soil Organic Sludge Other:	1L amber Cubittainer 2 oz glass 8 oz glass VOA vial Encore Other:	H ₂ SO ₄ HNO ₃ NAOH HCL None Disinfected
For Lab Use Only					X	
Relinquished By: <i>[Signature]</i>	Received By: <i>[Signature]</i>	Received By: <i>[Signature]</i>	Received By: <i>[Signature]</i>	Date: 8/18/05	Time: 2:00 PM	
Relinquished By: <i>[Signature]</i>	Received By: <i>[Signature]</i>	Received By: <i>[Signature]</i>	Received By: <i>[Signature]</i>	Date: 8/19/05	Time: 0900	
Relinquished By: <i>[Signature]</i>	Received By: <i>[Signature]</i>	Received By: <i>[Signature]</i>	Received By: <i>[Signature]</i>	Date:	Time:	



MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

05-08094



Collector's Name (Please Print): Darrick Steen		Affiliation (Division/Program/Section): ALPD/HWP/FFS		TMA, Elevation, Description of Shipment		No. of Containers: 40							
Sample Number		Sample Collected		Analyses		Sample Type		Matrix		Container		Preserved	
VPSCR081705SL13		Date: 08/17/05		Iso Th, Iso U, Ra ₂₂₆		X Grab		Water		1L amber		H ₂ SO ₄	
For Lab Use Only		Time: 10:32 AM		pH Temp. Spec. Cond. D.O. Flow Other:		Composite Modified Other:		Soil Organic Sludge Other:		Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other:		HNO ₃ NAOH HCL None Disinfected	
VPSCR081705SL14		Date: 08/17/05		Iso Th, Iso U, Ra ₂₂₆		X Grab		Water		1L amber		H ₂ SO ₄	
For Lab Use Only		Time: 10:44 AM		pH Temp. Spec. Cond. D.O. Flow Other:		Composite Modified Other:		Soil Organic Sludge Other:		Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other:		HNO ₃ NAOH HCL None Disinfected	
VPSCR081705SL15		Date: 08/17/05		Iso Th, Iso U, Ra ₂₂₆		X Grab		Water		1L amber		H ₂ SO ₄	
For Lab Use Only		Time: 10:46 AM		pH Temp. Spec. Cond. D.O. Flow Other:		Composite Modified Other:		Soil Organic Sludge Other:		Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other:		HNO ₃ NAOH HCL None Disinfected	
VPSCR081705SL16		Date: 08/17/05		Iso Th, Iso U, Ra ₂₂₆		X Grab		Water		1L amber		H ₂ SO ₄	
For Lab Use Only		Time: 10:51 AM		pH Temp. Spec. Cond. D.O. Flow Other:		Composite Modified Other:		Soil Organic Sludge Other:		Cubitainer 2 oz glass 8 oz glass VOA vial Encore Other:		HNO ₃ NAOH HCL None Disinfected	
Relinquished By: <i>Darrick Steen</i>		Received By: <i>Eric Dittay</i>		M&DNR		Date: 8/18/05		Time: 2:00 PM					
Relinquished By: <i>Eric Dittay</i>		Received By: <i>Eric Dittay</i>				Date: 8/19/05		Time: 8:00					
Relinquished By: <i>Eric Dittay</i>		Received By: <i>Eric Dittay</i>				Date: 8/19/05		Time: 8:00					



EBERLINE
SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #

05-08094

Lab Deadline

9/9/2005

Analysis

UISO - Level 4

Sample Matrix

Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	42	J1.1
	05	35	J1.1
	06	45	J1.1
	07	38	J1.1
	08	41	J1.1
	09	38	J1.1
	10	41	J1.1
	11	47	J1.1
	12	37	J1.1
	13	30	J1.1
	14	42	J1.1
	15	37	J1.1
	16	46	J1.1
	17	41	J1.1

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1330	Kenny Sells	8-19-05
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1450	Kenny Sells	8-22-05
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	Ronald Sells	8-24-05
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	Ronald Sells	8-24-05
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	ST & LU	8-24-05 0600
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	Murphy	9-2-05 700
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	ST & LU	9-2-05 0700
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	Murphy	9-2-05 1251
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		



EBERLINE
SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #

05-08094

Lab Deadline

9/9/2005

Analysis

ThISO - Level 4

Sample Matrix

Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	42	J1.1
	05	35	J1.1
	06	45	J1.1
	07	38	J1.1
	08	41	J1.1
	09	38	J1.1
	10	41	J1.1
	11	47	J1.1
	12	37	J1.1
	13	30	J1.1
	14	42	J1.1
	15	37	J1.1
	16	46	J1.1
	17	41	J1.1

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1336	Kenny Selig 8-19-05
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1450	Kenny Selig 8-22-05
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		8-22-05
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		8-22-05
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		8-27-05 1000
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		9-2-05 1900
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		9-2-05 0700
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		9-2-05 1130
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		



Internal Chain of Custody

Work Order #

05-08094

Lab Deadline

9/9/2005

Analysis

Ra226 - Level 4

Sample Matrix

Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	42	J1.1
	05	35	J1.1
	06	45	J1.1
	07	38	J1.1
	08	41	J1.1
	09	38	J1.1
	10	41	J1.1
	11	47	J1.1
	12	37	J1.1
	13	30	J1.1
	14	42	J1.1
	15	37	J1.1
	16	46	J1.1
	17	41	J1.1

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1330	Kenny Sellig 8-19-05
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1450	Kenny Sellig 8-22-05
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		JP 8/20/05 11:15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		JP 8/22/05 12:48
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1245	JA 8/26/05
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1330	JA 8/26/05
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		JP 8-26-05 1330
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		JP 8-29-05 0645
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

SECTION II
SAMPLE ACKNOWLEDGEMENT

Client Name		Contract/PO		Project Type		Date Received		Required Turnaround Days		Eberline Services Work Order		
Missouri Dept. of Natural Resources		C302092001		Environmental		08/19/2005		28		05-08094		
Project Name		Client WO		Sample Disp		Lab Deadline		Internal Deadline		Client Deadline		
B3Z02092		ALDP/HWP/FFS		R		09/09/2005		09/15/2005		09/16/2005		
Internal ID	Client ID	Sample Date	Matrix	Storage	Ra226	Th150	Uniso					
01	LCS	08/22/05	SO	J1.1	X	X	X				3	
02	BLANK	08/22/05	SO	J1.1	X	X	X				3	
03	DUP	08/22/05	SO	J1.1	X	X	X				3	
04	VPSCR081705SL01	08/17/05 10:02	SO	J1.1	X	X	X				3	
05	VPSCR081705SL02	08/17/05 10:04	SO	J1.1	X	X	X				3	
06	VPSCR081705SL03	08/17/05 10:08	SO	J1.1	X	X	X				3	
07	VPSCR081705SL04	08/17/05 10:09	SO	J1.1	X	X	X				3	
08	VPSCR081705SL05	08/17/05 10:11	SO	J1.1	X	X	X				3	
09	VPSCR081705SL06	08/17/05 10:18	SO	J1.1	X	X	X				3	
10	VPSCR081705SL07	08/17/05 10:20	SO	J1.1	X	X	X				3	
11	VPSCR081705SL08	08/17/05 10:21	SO	J1.1	X	X	X				3	
12	VPSCR081705SL09	08/17/05 10:23	SO	J1.1	X	X	X				3	
13	VPSCR081705SL10	08/17/05 10:25	SO	J1.1	X	X	X				3	
14	VPSCR081705SL11	08/17/05 10:27	SO	J1.1	X	X	X				3	
15	VPSCR081705SL12	08/17/05 10:30	SO	J1.1	X	X	X				3	
16	VPSCR081705SL13	08/17/05 10:32	SO	J1.1	X	X	X				3	
17	VPSCR081705SL14	08/17/05 10:44	SO	J1.1	X	X	X				3	
											0	
											0	
											0	
Totals Per Analysis (non QA samples)					14	14	14	0	0	0	0	0

Invoice		Accounts Payable		Report Data	
Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830		Missouri Dept. of Natural Resources 917 Hwy 67 North #104 Florissant, MO 63031		Steve Lang Missouri Dept. of Natural Resources 917 Hwy 67 North #104 Florissant, MO 63031	
Voice: (865) 481-0683 Fax: (865) 483-4621		Voice: 314-877-3252 Fax: 314-877-3254		Voice: 314-877-3252 Fax: 314-877-3254	
Contact Voice Fax		Steve Lang 314-877-3252 314-877-3254		eMail file to Steve Lang	



EBERLINE
SERVICES

STANDARD OPERATING PROCEDURE

Sample Receiving

MP-001, Rev. 7
Effective: 10/31/03
Page 11 of 12

Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST

MP-001-2

WORK ORDER # 05-08094

SAMPLE MATRIX/MATRICES:

(CIRCLE ONE OR BOTH)

AQUEOUS NON-AQUEOUS

WERE SAMPLES:

(CIRCLE EITHER YES, NO, OR N/A)

Received in good condition?

Y

OR

N

If aqueous, properly preserved

Y

OR

N

N/A

WERE CHAIN OF CUSTODY SEALS:

Present on outside of package?

Y

OR

N

Unbroken on outside of package?

Y

OR

N

Present on samples?

Y

OR

N

Unbroken on samples?

Y

OR

N

Was chain of custody present upon sample receipt? Yes

IF ANY OF THE ABOVE ARE CIRCLED, A DISCREPANT SAMPLE RECEIPT REPORT (DSR) HAS BEEN ISSUED.

REMARKS: _____

SIGNATURE: JC Bannister DATE: 8/19/05

SECTION III
CASE NARRATIVE



EBS-OR-22937

September 14, 2005

Steve Lang
Missouri Dept. of Natural Resources
St. Louis Field Office
917 Hwy. 67 North, Suite 104
Florissant, MO 63031

Oak Ridge Laboratory
601 Scarboro Road
Oak Ridge, TN 37830
Phone (865) 481-0683
Fax (865) 483-4621

CASE NARRATIVE

Work Order# 05-08094-OR

SAMPLE RECEIPT

This work order contains fourteen soil samples received 08/19/2005. These samples were analyzed for Isotopic Uranium, Isotopic Thorium and Radium-226.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
VPSCR081705SL01	05-08094-04	VPSCR081705SL08	05-08094-11
VPSCR081705SL02	05-08094-05	VPSCR081705SL09	05-08094-12
VPSCR081705SL03	05-08094-06	VPSCR081705SL10	05-08094-13
VPSCR081705SL04	05-08094-07	VPSCR081705SL11	05-08094-14
VPSCR081705SL05	05-08094-08	VPSCR081705SL12	05-08094-15
VPSCR081705SL06	05-08094-09	VPSCR081705SL13	05-08094-16
VPSCR081705SL07	05-08094-10	VPSCR081705SL14	05-08094-17

The file name for these samples is 0508094.XLS.

ANALYTICAL METHODS

Isotopic Uranium was analyzed using Method EML U-02 Modified. Isotopic Thorium was analyzed using Method EML Th-01 Modified. Radium-226 was analyzed using EPA Method 903.0 Modified.

ANALYTICAL RESULTS

ISOTOPIC URANIUM

Samples were prepared by removing a representative aliquot from each sample followed by mixed acid digestions as appropriate. Uranium was selectively extracted by ion exchange. Uranium was eluted, micro-precipitated and mounted on micro-porous filter media. Sample activities were then determined by alpha spectroscopy using energy specific regions of interest for Uranium-234, Uranium-235 and Uranium-238. Chemical recovery was determined by the use of a Uranium-232 tracer. Activity of the Uranium-232 tracer was determined by alpha spectroscopy using an energy specific region of interest.

Samples demonstrated background equivalent results for Uranium-234, Uranium-235 and Uranium-238 activity. Chemical recovery was acceptable for all samples. Results for the Uranium-234, Uranium-235

ANALYTICAL RESULTS CONTINUED

ISOTOPIC URANIUM CONTINUED

and Uranium-238 method blank demonstrated background equivalent activity. Results for the Uranium-234 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Uranium-235 and Uranium-238 replicate demonstrated a slightly high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Uranium-234, Uranium-235 and Uranium-238 laboratory control sample demonstrated an acceptable percent recovery.

ISOTOPIC THORIUM

Samples were prepared by removing a representative aliquot from each sample followed by mixed acid digestions as appropriate. Thorium was selectively extracted by ion exchange. Thorium was eluted, micro-precipitated and mounted on micro-porous filter media. Sample activities were then determined by alpha spectroscopy using energy specific regions of interest for Thorium-228, Thorium-230 and Thorium-232. Chemical recovery was determined by the use of a Thorium-229 tracer. Activity of the Thorium-229 tracer was determined by alpha spectroscopy using an energy specific region of interest.

Samples demonstrated background equivalent results for Thorium-228 and Thorium-232 activity. Samples demonstrated background equivalent to slightly positive results for Thorium-230 activity. Results for the Thorium-228, Thorium-230 and Thorium-232 method blank demonstrated background equivalent activity. Chemical recovery was acceptable for all samples. Results for the Thorium-228 and Thorium-230 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Thorium-232 replicate demonstrated a slightly high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Thorium-228, Thorium-230 and Thorium-232 laboratory control sample demonstrated an acceptable percent recovery.

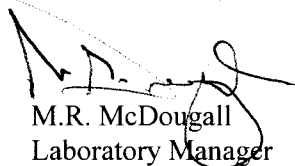
RADIUM-226

Samples were prepared by drying, pulverizing and homogenizing. Representative aliquots were removed and samples were digested using mixed acids. Radium-226 was precipitated as Radium sulfate using elemental Barium and Lead as carriers. Sulfates were dissolved in alkaline EDTA. Radium-226 was selectively precipitated from slightly acidic EDTA. Precipitates were then mounted by semi-micro-precipitations onto micro-porous filters. Samples were counted by alpha spectroscopy using an energy specific region of interest for Radium-226. Chemical recovery was calculated by the use of a Barium-133 tracer, which was determined by HPGe gamma spectroscopy.

Samples demonstrated near background equivalent results for Radium-226 activity. Results for the Radium-226 method blank demonstrated background equivalent activity. Chemical recovery was acceptable for all samples. Results for the Radium-226 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Radium-226 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall
Laboratory Manager

Date: 9/14/2005

SECTION IV
ANALYTICAL RESULTS SUMMARY

Steve Lang
Miss. Dept. of Nat. Resources
917 Hwy. 67 North, #104
Florissant, MO 63031

Affiliation: ALPD/HWP/FFS
SDG: 0508094
Matrix: Soil

Final Report of Analysis
Date Reported: 9/14/2005
Page 1 of 5

Client ID	Lab ID	Date Analyzed	Analyte	Method	Result	Error	MDA	Unit	Qualifier
KNOWN	0508094-01	08/27/05	Radium-226	EPA 903.0 Modified	10.28	0.47	0.21	pCi/g	
KNOWN	0508094-01	09/02/05	Thorium-228	EML Th-01 Modified	4.74	0.17	0.10	pCi/g	
KNOWN	0508094-01	09/02/05	Thorium-230	EML Th-01 Modified	5.33	0.14	0.07	pCi/g	
KNOWN	0508094-01	09/02/05	Thorium-232	EML Th-01 Modified	4.74	0.17	0.09	pCi/g	
KNOWN	0508094-01	09/02/05	Uranium-234	EML U-02 Modified	7.98	0.29	0.11	pCi/g	
KNOWN	0508094-01	09/02/05	Uranium-235	EML U-02 Modified	0.36	0.01	0.08	pCi/g	
KNOWN	0508094-01	09/02/05	Uranium-238	EML U-02 Modified	7.78	0.28	0.08	pCi/g	
SPIKE	0508094-01	08/27/05	Radium-226	EPA 903.0 Modified	10.08	1.34	0.21	pCi/g	
SPIKE	0508094-01	09/02/05	Thorium-228	EML Th-01 Modified	5.06	0.93	0.10	pCi/g	
SPIKE	0508094-01	09/02/05	Thorium-230	EML Th-01 Modified	5.72	1.03	0.07	pCi/g	
SPIKE	0508094-01	09/02/05	Thorium-232	EML Th-01 Modified	4.95	0.91	0.09	pCi/g	
SPIKE	0508094-01	09/02/05	Uranium-234	EML U-02 Modified	8.02	1.35	0.11	pCi/g	
SPIKE	0508094-01	09/02/05	Uranium-235	EML U-02 Modified	0.37	0.17	0.08	pCi/g	
SPIKE	0508094-01	09/02/05	Uranium-238	EML U-02 Modified	8.43	1.41	0.08	pCi/g	
BLANK	0508094-02	08/27/05	Radium-226	EPA 903.0 Modified	0.03	0.06	0.16	pCi/g	U
BLANK	0508094-02	09/02/05	Thorium-228	EML Th-01 Modified	-0.02	0.02	0.18	pCi/g	U
BLANK	0508094-02	09/02/05	Thorium-230	EML Th-01 Modified	0.21	0.16	0.16	pCi/g	J
BLANK	0508094-02	09/02/05	Thorium-232	EML Th-01 Modified	0.08	0.10	0.18	pCi/g	U
BLANK	0508094-02	09/02/05	Uranium-234	EML U-02 Modified	0.18	0.11	0.10	pCi/g	J
BLANK	0508094-02	09/02/05	Uranium-235	EML U-02 Modified	0.07	0.07	0.05	pCi/g	U
BLANK	0508094-02	09/02/05	Uranium-238	EML U-02 Modified	0.08	0.07	0.08	pCi/g	J
VPSCR081705SL01	0508094-03	08/27/05	Radium-226	EPA 903.0 Modified	0.98	0.34	0.08	pCi/g	
VPSCR081705SL01	0508094-03	09/02/05	Thorium-228	EML Th-01 Modified	0.49	0.19	0.10	pCi/g	
VPSCR081705SL01	0508094-03	09/02/05	Thorium-230	EML Th-01 Modified	1.40	0.36	0.12	pCi/g	
VPSCR081705SL01	0508094-03	09/02/05	Thorium-232	EML Th-01 Modified	0.71	0.23	0.09	pCi/g	
VPSCR081705SL01	0508094-03	09/02/05	Uranium-234	EML U-02 Modified	0.94	0.26	0.07	pCi/g	
VPSCR081705SL01	0508094-03	09/02/05	Uranium-235	EML U-02 Modified	0.07	0.08	0.10	pCi/g	U
VPSCR081705SL01	0508094-03	09/02/05	Uranium-238	EML U-02 Modified	0.66	0.21	0.06	pCi/g	



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Client ID	Lab ID	Date		Analyte	Method	Result	Error	MDA	Unit	Qualifier
		Analyzed								
VPSCR081705SL01	0508094-04	08/27/05		Radium-226	EPA 903.0 Modified	1.18	0.39	0.20	pCi/g	
VPSCR081705SL01	0508094-04	09/02/05		Thorium-228	EML Th-01 Modified	0.59	0.22	0.10	pCi/g	
VPSCR081705SL01	0508094-04	09/02/05		Thorium-230	EML Th-01 Modified	1.39	0.38	0.12	pCi/g	
VPSCR081705SL01	0508094-04	09/02/05		Thorium-232	EML Th-01 Modified	0.88	0.28	0.05	pCi/g	
VPSCR081705SL01	0508094-04	09/02/05		Uranium-234	EML U-02 Modified	0.88	0.25	0.07	pCi/g	
VPSCR081705SL01	0508094-04	09/02/05		Uranium-235	EML U-02 Modified	0.10	0.08	0.04	pCi/g	J
VPSCR081705SL01	0508094-04	09/02/05		Uranium-238	EML U-02 Modified	0.89	0.25	0.04	pCi/g	
VPSCR081705SL02	0508094-05	08/27/05		Radium-226	EPA 903.0 Modified	1.01	0.36	0.14	pCi/g	
VPSCR081705SL02	0508094-05	09/02/05		Thorium-228	EML Th-01 Modified	0.54	0.20	0.11	pCi/g	
VPSCR081705SL02	0508094-05	09/02/05		Thorium-230	EML Th-01 Modified	2.41	0.54	0.10	pCi/g	
VPSCR081705SL02	0508094-05	09/02/05		Thorium-232	EML Th-01 Modified	0.42	0.17	0.08	pCi/g	
VPSCR081705SL02	0508094-05	09/02/05		Uranium-234	EML U-02 Modified	0.97	0.27	0.04	pCi/g	
VPSCR081705SL02	0508094-05	09/02/05		Uranium-235	EML U-02 Modified	0.12	0.09	0.05	pCi/g	J
VPSCR081705SL02	0508094-05	09/02/05		Uranium-238	EML U-02 Modified	0.94	0.26	0.07	pCi/g	
VPSCR081705SL03	0508094-06	08/27/05		Radium-226	EPA 903.0 Modified	1.37	0.44	0.18	pCi/g	
VPSCR081705SL03	0508094-06	09/02/05		Thorium-228	EML Th-01 Modified	0.29	0.14	0.11	pCi/g	
VPSCR081705SL03	0508094-06	09/02/05		Thorium-230	EML Th-01 Modified	1.46	0.38	0.07	pCi/g	
VPSCR081705SL03	0508094-06	09/02/05		Thorium-232	EML Th-01 Modified	0.38	0.16	0.09	pCi/g	
VPSCR081705SL03	0508094-06	09/02/05		Uranium-234	EML U-02 Modified	0.91	0.27	0.09	pCi/g	
VPSCR081705SL03	0508094-06	09/02/05		Uranium-235	EML U-02 Modified	0.08	0.08	0.10	pCi/g	U
VPSCR081705SL03	0508094-06	09/02/05		Uranium-238	EML U-02 Modified	1.00	0.28	0.04	pCi/g	
VPSCR081705SL04	0508094-07	08/27/05		Radium-226	EPA 903.0 Modified	0.87	0.34	0.21	pCi/g	
VPSCR081705SL04	0508094-07	09/02/05		Thorium-228	EML Th-01 Modified	0.74	0.29	0.13	pCi/g	
VPSCR081705SL04	0508094-07	09/02/05		Thorium-230	EML Th-01 Modified	1.40	0.43	0.11	pCi/g	
VPSCR081705SL04	0508094-07	09/02/05		Thorium-232	EML Th-01 Modified	0.71	0.28	0.11	pCi/g	
VPSCR081705SL04	0508094-07	09/02/05		Uranium-234	EML U-02 Modified	0.73	0.21	0.05	pCi/g	
VPSCR081705SL04	0508094-07	09/02/05		Uranium-235	EML U-02 Modified	0.04	0.05	0.04	pCi/g	U
VPSCR081705SL04	0508094-07	09/02/05		Uranium-238	EML U-02 Modified	0.57	0.18	0.03	pCi/g	

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Final Report of Analysis
Date Reported: 9/14/2005
Page 3 of 5

Client ID	Lab ID	Date		Analyte	Method	Result	Error	MDA	Unit	Qualifier
		Analyzed								
VPSCR081705SL05	0508094-08	08/27/05		Radium-226	EPA 903.0 Modified	1.22	0.40	0.17	pCi/g	
VPSCR081705SL05	0508094-08	09/02/05		Thorium-228	EML Th-01 Modified	0.47	0.19	0.12	pCi/g	
VPSCR081705SL05	0508094-08	09/02/05		Thorium-230	EML Th-01 Modified	1.86	0.46	0.07	pCi/g	
VPSCR081705SL05	0508094-08	09/02/05		Thorium-232	EML Th-01 Modified	0.61	0.22	0.07	pCi/g	
VPSCR081705SL05	0508094-08	09/02/05		Uranium-234	EML U-02 Modified	1.02	0.28	0.06	pCi/g	
VPSCR081705SL05	0508094-08	09/02/05		Uranium-235	EML U-02 Modified	0.10	0.09	0.05	pCi/g	J
VPSCR081705SL05	0508094-08	09/02/05		Uranium-238	EML U-02 Modified	0.84	0.25	0.04	pCi/g	
VPSCR081705SL06	0508094-09	08/27/05		Radium-226	EPA 903.0 Modified	1.73	0.46	0.15	pCi/g	
VPSCR081705SL06	0508094-09	09/02/05		Thorium-228	EML Th-01 Modified	1.27	0.39	0.09	pCi/g	
VPSCR081705SL06	0508094-09	09/02/05		Thorium-230	EML Th-01 Modified	3.75	0.86	0.16	pCi/g	
VPSCR081705SL06	0508094-09	09/02/05		Thorium-232	EML Th-01 Modified	1.30	0.39	0.05	pCi/g	
VPSCR081705SL06	0508094-09	09/02/05		Uranium-234	EML U-02 Modified	0.93	0.25	0.06	pCi/g	
VPSCR081705SL06	0508094-09	09/02/05		Uranium-235	EML U-02 Modified	0.04	0.05	0.09	pCi/g	U
VPSCR081705SL06	0508094-09	09/02/05		Uranium-238	EML U-02 Modified	0.75	0.22	0.07	pCi/g	
VPSCR081705SL07	0508094-10	08/27/05		Radium-226	EPA 903.0 Modified	1.38	0.42	0.17	pCi/g	
VPSCR081705SL07	0508094-10	09/02/05		Thorium-228	EML Th-01 Modified	0.82	0.25	0.09	pCi/g	
VPSCR081705SL07	0508094-10	09/02/05		Thorium-230	EML Th-01 Modified	1.33	0.35	0.09	pCi/g	
VPSCR081705SL07	0508094-10	09/02/05		Thorium-232	EML Th-01 Modified	0.76	0.24	0.08	pCi/g	
VPSCR081705SL07	0508094-10	09/02/05		Uranium-234	EML U-02 Modified	1.01	0.29	0.07	pCi/g	
VPSCR081705SL07	0508094-10	09/02/05		Uranium-235	EML U-02 Modified	0.02	0.04	0.09	pCi/g	U
VPSCR081705SL07	0508094-10	09/02/05		Uranium-238	EML U-02 Modified	0.92	0.27	0.07	pCi/g	
VPSCR081705SL08	0508094-11	08/27/05		Radium-226	EPA 903.0 Modified	0.88	0.30	0.06	pCi/g	
VPSCR081705SL08	0508094-11	09/02/05		Thorium-228	EML Th-01 Modified	0.79	0.24	0.10	pCi/g	
VPSCR081705SL08	0508094-11	09/02/05		Thorium-230	EML Th-01 Modified	2.93	0.61	0.09	pCi/g	
VPSCR081705SL08	0508094-11	09/02/05		Thorium-232	EML Th-01 Modified	0.85	0.25	0.06	pCi/g	
VPSCR081705SL08	0508094-11	09/02/05		Uranium-234	EML U-02 Modified	1.03	0.28	0.07	pCi/g	
VPSCR081705SL08	0508094-11	09/02/05		Uranium-235	EML U-02 Modified	0.03	0.05	0.05	pCi/g	U
VPSCR081705SL08	0508094-11	09/02/05		Uranium-238	EML U-02 Modified	1.03	0.28	0.06	pCi/g	

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Client ID	Lab ID	Date Analyzed	Analyte	Method	Result	Error	MDA	Unit	Qualifier
VPSCR081705SL09	0508094-12	08/27/05	Radium-226	EPA 903.0 Modified	1.24	0.36	0.12	pCi/g	
VPSCR081705SL09	0508094-12	09/02/05	Thorium-228	EML Th-01 Modified	1.07	0.32	0.09	pCi/g	
VPSCR081705SL09	0508094-12	09/02/05	Thorium-230	EML Th-01 Modified	1.98	0.48	0.10	pCi/g	
VPSCR081705SL09	0508094-12	09/02/05	Thorium-232	EML Th-01 Modified	0.74	0.25	0.11	pCi/g	
VPSCR081705SL09	0508094-12	09/02/05	Uranium-234	EML U-02 Modified	1.04	0.26	0.03	pCi/g	
VPSCR081705SL09	0508094-12	09/02/05	Uranium-235	EML U-02 Modified	0.06	0.06	0.04	pCi/g	U
VPSCR081705SL09	0508094-12	09/02/05	Uranium-238	EML U-02 Modified	0.71	0.21	0.03	pCi/g	
VPSCR081705SL10	0508094-13	08/27/05	Radium-226	EPA 903.0 Modified	1.19	0.39	0.20	pCi/g	
VPSCR081705SL10	0508094-13	09/02/05	Thorium-228	EML Th-01 Modified	1.06	0.31	0.14	pCi/g	
VPSCR081705SL10	0508094-13	09/02/05	Thorium-230	EML Th-01 Modified	3.68	0.76	0.08	pCi/g	
VPSCR081705SL10	0508094-13	09/02/05	Thorium-232	EML Th-01 Modified	1.28	0.35	0.07	pCi/g	
VPSCR081705SL10	0508094-13	09/02/05	Uranium-234	EML U-02 Modified	1.26	0.32	0.04	pCi/g	
VPSCR081705SL10	0508094-13	09/02/05	Uranium-235	EML U-02 Modified	0.07	0.07	0.05	pCi/g	U
VPSCR081705SL10	0508094-13	09/02/05	Uranium-238	EML U-02 Modified	0.98	0.27	0.04	pCi/g	
VPSCR081705SL11	0508094-14	08/27/05	Radium-226	EPA 903.0 Modified	1.11	0.35	0.17	pCi/g	
VPSCR081705SL11	0508094-14	09/02/05	Thorium-228	EML Th-01 Modified	0.38	0.18	0.11	pCi/g	
VPSCR081705SL11	0508094-14	09/02/05	Thorium-230	EML Th-01 Modified	1.32	0.38	0.18	pCi/g	
VPSCR081705SL11	0508094-14	09/02/05	Thorium-232	EML Th-01 Modified	0.51	0.21	0.12	pCi/g	
VPSCR081705SL11	0508094-14	09/02/05	Uranium-234	EML U-02 Modified	0.78	0.23	0.04	pCi/g	
VPSCR081705SL11	0508094-14	09/02/05	Uranium-235	EML U-02 Modified	0.03	0.05	0.07	pCi/g	U
VPSCR081705SL11	0508094-14	09/02/05	Uranium-238	EML U-02 Modified	0.78	0.23	0.04	pCi/g	
VPSCR081705SL12	0508094-15	08/27/05	Radium-226	EPA 903.0 Modified	0.96	0.31	0.15	pCi/g	
VPSCR081705SL12	0508094-15	09/02/05	Thorium-228	EML Th-01 Modified	0.42	0.18	0.16	pCi/g	
VPSCR081705SL12	0508094-15	09/02/05	Thorium-230	EML Th-01 Modified	1.18	0.33	0.11	pCi/g	
VPSCR081705SL12	0508094-15	09/02/05	Thorium-232	EML Th-01 Modified	0.56	0.21	0.08	pCi/g	
VPSCR081705SL12	0508094-15	09/02/05	Uranium-234	EML U-02 Modified	1.03	0.34	0.11	pCi/g	
VPSCR081705SL12	0508094-15	09/02/05	Uranium-235	EML U-02 Modified	0.10	0.10	0.12	pCi/g	U
VPSCR081705SL12	0508094-15	09/02/05	Uranium-238	EML U-02 Modified	0.85	0.30	0.13	pCi/g	

Steve Lang

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Affiliation: ALPD/HWP/FFS

SDG: 0508094

Matrix: Soil

Final Report of Analysis

Date Reported: 9/14/2005

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Client ID	Lab ID	Date Analyzed	Analyte	Method	Result	Error	MDA	Unit	Qualifier
VPSCR081705SL13	0508094-16	08/27/05	Radium-226	EPA 903.0 Modified	1.19	0.39	0.18	pCi/g	
VPSCR081705SL13	0508094-16	09/02/05	Thorium-228	EML Th-01 Modified	0.86	0.30	0.17	pCi/g	
VPSCR081705SL13	0508094-16	09/02/05	Thorium-230	EML Th-01 Modified	5.41	1.14	0.12	pCi/g	
VPSCR081705SL13	0508094-16	09/02/05	Thorium-232	EML Th-01 Modified	1.12	0.35	0.14	pCi/g	
VPSCR081705SL13	0508094-16	09/02/05	Uranium-234	EML U-02 Modified	0.85	0.24	0.06	pCi/g	
VPSCR081705SL13	0508094-16	09/02/05	Uranium-235	EML U-02 Modified	0.02	0.03	0.04	pCi/g	U
VPSCR081705SL13	0508094-16	09/02/05	Uranium-238	EML U-02 Modified	0.94	0.26	0.06	pCi/g	
VPSCR081705SL14	0508094-17	08/27/05	Radium-226	EPA 903.0 Modified	1.85	0.51	0.29	pCi/g	
VPSCR081705SL14	0508094-17	09/02/05	Thorium-228	EML Th-01 Modified	1.05	0.29	0.12	pCi/g	
VPSCR081705SL14	0508094-17	09/02/05	Thorium-230	EML Th-01 Modified	4.41	0.84	0.07	pCi/g	
VPSCR081705SL14	0508094-17	09/02/05	Thorium-232	EML Th-01 Modified	1.01	0.28	0.03	pCi/g	
VPSCR081705SL14	0508094-17	09/02/05	Uranium-234	EML U-02 Modified	0.97	0.27	0.07	pCi/g	
VPSCR081705SL14	0508094-17	09/02/05	Uranium-235	EML U-02 Modified	0.16	0.11	0.04	pCi/g	
VPSCR081705SL14	0508094-17	09/02/05	Uranium-238	EML U-02 Modified	0.90	0.25	0.06	pCi/g	



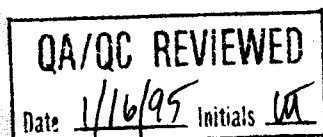
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SECTION V
ANALYTICAL STANDARD

u-8



CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

Radionuclide: U-238NAT
 Half Life: $(4.468 \pm 0.005) \times 10^9$ years
 Catalog No.: 7338
 Source No.: 479-50

Customer: TMA EBERLINE
 P.O.No.: OR2778
 Reference Date: January 1 1995 12:00 PST.
 Contained Radioactivity: (Total U) 8.016 μ Ci
 Contained Radioactivity: (Total U) 297 kBq

Description of Solution

- a. Mass of solution: 65.2896 g in a 50 ml flame sealed ampoule
 b. Chemical form: Uranyl Nitrate in H₂O
 c. Carrier content: None
 d. Density: Approximately 1.3202 g/ml @ 20°C.

Radioimpurities

Refer to attached technical data sheet

Radioactive Daughters

Refer to attached technical data sheet

Radionuclide Concentration

(Total U) 0.1228

μ Ci/g.

Method of Calibration

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

- a. Systematic uncertainty in instrument calibration: $\pm 3.0\%$
 b. Random uncertainty in assay: $\pm 0.0\%$
 c. Random uncertainty in weighing(s): $\pm 2.0\%$
 d. Total uncertainty at the 99% confidence level: $\pm 3.6\%$

NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

Leak Test(s)

See reverse side for Leak Test(s) applied to this source.

Notes

1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).

QUALITY CONTROL

29 DECEMBER 1994
 Date Signed



ISOTOPE PRODUCTS LABORATORIES

3017 N. SAN FERNANDO BLVD.

BURBANK, CALIFORNIA 91504

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QUALITY CONTROL PROGRAM
MP-009

Rev.8; 11/01/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
MP 009

CURRENT DATE 1/4/2005 0:00
SOLUTION # U-8

SOLUTION REFERENCE # IPL 479-50

Principal Radionuclide

²³⁴, ²³⁵, ²³⁸U

Half Life, Years

4.468E+09

Half Life, Days

1.632E+12

Radionuclide

²³⁴, ²³⁵, ²³⁸U

Reference Date

1/1/1995 0:00

Certified Activity

8.016E+00 μ Ci

Certified Concentration

μ Ci per gram

Ampoule /Solution Gross

97.6400

Weight, Grams

Empty Ampoule

32.5020

Weight, Grams

Solution Net

65.1380

Weight, Grams

Total Activity in Ampoule

8.0160

μ Ci

Chemical Composition of Standard Solution

Uranyl nitrate in dilute HNO₃

Dilution Instructions:

Dilution Solvent Used

1M HNO₃

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 8.0160 μ Ci

Which Equals

1.780E+07 dpm at the date listed above

And after dilution the activity of this solution is 1.77955E+04 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 4, 2006

Recertified By

Date: 1/18/2005 11:55

Verified & Approved By

Date: 1/18/2005 11:55

QC Approval

Date: 1/18/2005 11:55

**EBERLINE****QUALITY CONTROL PROGRAM**

MP-009

Rev. 8: 11/01/03

Title: **Radioactive Reference Standards Solutions & Records****EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION**

Solution Reference # MP-009		Date 1/4/2005 0:00
Solution Reference # IPL 479-50		Solution # U-8a
Principal Radionuclide ^{234, 235, 238}U	Half Life, Years 4.468E+09	Half Life, Days 1.632E+12

Radionuclide of Interest **^{234, 235, 238}U**
Parent Solution Conc. **1.7796E+04** dpm/ml

Reference Date **1/1/1995 0:00****Chemical Composition of Standard Solution****Uranly Nitrate in 1M HNO₃**

Dilution Instructions:

Dilution Solvent Used

1M HNO₃**SECONDARY VOLUMETRIC DILUTION**Vol. Parent Solution: **4.0000** mlTotal Activity: **7.1182E+04** dpmFinal Volume: **1000.00** mlFinal Activity Concentration: **7.1182E+01** dpm/ml**NOTES:**

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Isotopic Distribution as:

U-238 Atom % = 48.239 U-238 = 71.182 dpm/ml X 0.48249 = 34.345 dpm/ml

U-235 Atom % = 2.25 U-235 = 71.182 dpm/ml X 0.0225 = 1.602 dpm/ml

U-234 Atom % = 49.501 U-238 = 71.182 dpm/ml X 0.49501 = 35.236 dpm/ml

All values +/- 3.6%


Isotopic ratios from manufacturer's data sheet

Expiration Date: **January 4, 2006**Recertified By Date: **1/18/2005 11:54**Verified & Approved By Date: **1/18/2005 11:54**QC Approval Date: **1/18/2005 11:54**

RECORD COPY

Tracer Solution for Environmental Analysis & Disequilibrium Studies

Product Description & Measurement Certificate

<i>Description</i>	Principal radionuclide: uranium 232 (U-232) Daughter Nuclide: Th-228	Product code: UDP10050 Batch Number: 92/232/67
<i>Measurement</i>	Reference date: Radioactive concentration U-232 which is equivalent to Mass of solution Volume of solution Total activity of U-232 which is equivalent to	01 March 2000 6.739E+03 becquerels per gram of solution 1.821E-01 microcuries per gram of solution 5.356 grams 5.035 millilitres 3.61E+04 becquerels 9.76E-01 microcuries
<i>Accuracy</i>	Method of measurement (see reverse of this certificate) Random uncertainty is: $\pm 0.7\%$ Systematic uncertainty: $\pm 0.5\%$ Overall uncertainty in the radioactive concentration quoted above: $\pm 1.7\%$ Overall uncertainty is defined on the reverse of this certificate.	
<i>Radionuclidic Purity</i>	Any radioactive impurities measured are listed below, expressed as percentages of the activity of the principle radionuclide at the reference date . Th-228 and daughter activity removed 2 Feb 2000 U-232 daughters activity will increase with time. By alpha 88% U-232, 12% daughters on 1/3/00	
<i>Isotopic Purity</i>	The isotopic composition, expressed as atom per cent at the reference date . Not measured	
<i>Chemical Composition</i>	Calculated weight of U-232, 4.42E-08 grams, as 2M HNO3 solution in a flame sealed glass vial. This Tracer solution has been produced 'carrier free'.	
<i>Physical Data</i>	Recommended half life of uranium 232: 6.980E+01 years Principle energies of alpha emissions (MeV): 5.263 31.7%, 5.320 68.0% Branching ratio for alpha emission: 100% Calculated specific activity of uranium 232: 8.167E+05 Bq per microgram U-232.	
<i>Remarks</i>	For safety information and notes to ensure correct usage by all persons handling this radioactive Tracer solution please read the instructions accompanying the package. AEA Technology operates a quality management system which has been independently audited and approved to ISO 9001.	
Approved Signatory	 Roger Wiltshire	
		Project Ref. AE2315

Prepared and characterised in the UK, for world wide distribution by Isotrak, AEA Technology, QSA.



QUALITY CONTROL PROGRAM

MP-009

Rev.8; 11/01/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY RADIOACTIVE REFERENCE SOLUTIONS PRIMARY DILUTION RECERTIFICATION MP 009

CURRENT DATE 1/4/2005 0:00

SOLUTION REFERENCE # AEA/Amersham 92/232/67

SOLUTION # U-10

Principal Radionuclide

Half Life, Years

Half Life, Days

²³²U

7.200E+01

2.630E+04

Radionuclide

²³²U

Reference Date 3/1/2000 0:00

Certified Activity 9.760E-01 μ Ci

Certified Concentration μ Ci per gram

Ampoule /Solution Gross

Weight, Grams

Empty Ampoule

Weight, Grams

Solution Net

Weight, Grams

Total Activity in Ampoule 0.9760 μ Ci

Chemical Composition of Standard Solution

²³²U(NO₃)₆ in 2M HNO₃

Dilution Instructions:

Dilution Solvent Used

2M HNO₃

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 0.9760 μ Ci

Which Equals 2.167E+06 dpm at the date listed above

And after dilution the activity of this solution is 2.167E+03 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 4, 2006

Recertified By

Date: 1/18/2005 10:37

Verified & Approved By

Date: 1/18/2005 10:37

QC Approval

Date: 1/18/2005 10:37



QUALITY CONTROL PROGRAM

MP-009

Rev. 8; 11/01/03

Title: Radioactive Reference Standards Solutions & Records

**EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION**

MP-009		Date	1/4/2005 0:00
Solution Reference #	AEA/Amersham 92/232/67	Solution #	U-10a
Principal Radionuclide	Half Life, Years	Half Life, Days	
^{232}U	7.200E+01	2.630E+04	

Radionuclide of Interest	^{232}U
Parent Solution Conc.	2.167E+03 dpm/ml

Reference Date 3/1/2000 0:00

Chemical Composition of Standard Solution

 $^{232}\text{U}(\text{NO}_3)_6$ in 2M HNO_3

Dilution Instructions:

Dilution Solvent Used

2M HNO_3

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution:	10.0000 ml
Total Activity:	2.1670E+04 dpm
Final Volume:	1000.00 ml

Final Activity Concentration: 2.1670E+01 dpm/ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 4, 2006

Recertified By

Date: 1/18/2005 10:37

Verified & Approved By

Date: 1/18/2005 10:37

QC Approval

Date: 1/18/2005 10:37

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

Radionuclide:	Th-232	Customer:	TMA EBERLINE
Half Life:	$(1.405 \pm 0.006) \times 10^{10}$ years	P.O.No.:	VH1632
Catalog No.:	7232	Reference Date:	November 1 1993 12:00 PST.
Source No.:	435-104-2	Contained Radioactivity:	(Th-232) 0.0933 μ Ci.
		Contained Radioactivity:	(Th-232) 3.45 kBq.

Description of Solution

a. Mass of solution:	11.9712 g (in a 10 ml flame sealed ampoule)
b. Chemical form:	Th(NO ₃) ₄ in water
c. Carrier content:	None added
d. Density:	Approx. 1.21 g/ml @ 20°C.

Radioimpurities: None detected (other than daughters).

Radioactive Daughters

Ra-228, Ac-228, Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Po-212, Tl-208

Radionuclide Concentration

(Th-232) 0.00779 μ Ci/g.

Method of Calibration

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration:	±3.0%
b. Random uncertainty in assay:	±0.0%
c. Random uncertainty in weighing(s):	±2.0%
d. Total uncertainty at the 99% confidence level:	±3.6%

NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

Leak Test(s)

See reverse side for Leak Test(s) applied to this source.

Notes

1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).



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Anna U. Khan
QUALITY CONTROL

Nov. 8, 1993
Date Signed



QUALITY CONTROL PROGRAM

MP-009

Rev.8; 1/10/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY RADIOACTIVE REFERENCE SOLUTIONS PRIMARY DILUTION RECERTIFICATION MP 009

CURRENT DATE 1/13/2005 0:00

SOLUTION REFERENCE # IPL 435-104-2

SOLUTION # Th-8

Principal Radionuclide

Half Life, Years

Half Life, Days

²³²Th, ²²⁸Th

1.405E+10

5.132E+12

Radionuclide

²³² & ²²⁸Th

Reference Date

11/1/1993 0:00

Certified Activity

9.330E-02 μ Ci

Certified Concentration

μ Ci per gram

Ampoule /Solution Gross

18.8415

Weight, Grams

Empty Ampoule

6.9296

Weight, Grams

Solution Net

11.9119

Weight, Grams

Total Activity in Ampoule

0.0933 μ Ci

Chemical Composition of Standard Solution

Th(NO₃)₄ in H₂O

Dilution Instructions:

Dilution Solvent Used

1% Nitric Acid

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 0.0933 μ Ci

Which Equals

2.071E+05 dpm at the date listed above

And after dilution the activity of this solution is 2.071E+02 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 13, 2006

Recertified By

Date: 1/13/2005 0:00

Verified & Approved By

Date: 1/8/2005 0:00

QC Approval

Date: 1/13/2005 0:00

**QUALITY CONTROL PROGRAM**

MP-009

Rev.8; 1/10/03

Title: Radioactive Reference Standards Solutions & Records

**EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION**

MP-009		Date	1/13/2005 0:00
Solution Reference #	IPL 435-104-2	Solution #	Th-8b
Principal Radionuclide	Half Life, Years	Half Life, Days	
^{228}Th & ^{232}Th	1.405E+10	5.132E+12	

Radionuclide of Interest	^{228}Th & ^{232}Th
Parent Solution Conc.	2.07E+02 dpm/ml

Reference Date 11/1/1993 0:00

Chemical Composition of Standard SolutionTh(NO₃)₄ in 1% HNO₃**Dilution Instructions:**

Dilution Solvent Used

1% Nitric Acid

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution:	500.0000 ml
Total Activity:	1.0355E+05 dpm
Final Volume:	1000.00 ml

Final Activity Concentration: 1.0355E+02 dpm/ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 13, 2006

Recertified By

Date: 1/13/2005 12:19

Verified & Approved By

Date: 1/18/05

QC Approval

Date:

QA/QC REVIEWED

Date 10/14/91

Initials WT

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

Received
OCT 14 1991
TMA/Eberline
Oak Ridge Lab

Radionuclide Th-230
Half Life: $(7.54 \pm 0.03) \times 10^4$ years
Catalog No.: 7230
Source No.: 388-116

Customer: TMA EBERLINE
P.O.No.: TT4944
Reference Date: November 1 1991 12:00 PST.
Contained Radioactivity: 1.036 μCi

Description of Solution

- a. Mass of solution: 5.0042 grams.
- b. Chemical form: $\text{Th}(\text{NO}_3)_4$ in 0.1N HNO_3
- c. Carrier content: None added
- d. Density: 1.0016 gram/ml @ 20°C.

Radioimpurities

See attached technical data sheet

Radioactive Daughters

See attached technical data sheet

Radionuclide Concentration

0.207 $\mu\text{Ci/gram}$.

Method of Calibration

Weighed aliquots of the solution were assayed using a liquid scintillation counter.

Uncertainty of Measurement

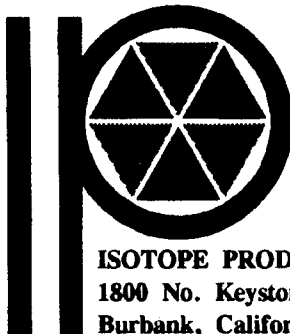
- a. Systematic uncertainty in instrument calibration: $\pm 2.0\%$
- b. Random uncertainty in assay: $\pm 0.5\%$
- c. Random uncertainty in weighing(s): $\pm 0.2\%$
- d. Total uncertainty at the 99% confidence level: $\pm 2.7\%$

NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

Notes

1. Nuclear data were taken from "Table of Isotopes", Seventh Edition, edited by Virginia S. Shirley.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials. (As in NRC Regulatory Guide 4.15)



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[Signature]
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QUALITY CONTROL PROGRAM

MP-009

Rev.8; 11/01/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY RADIOACTIVE REFERENCE SOLUTIONS PRIMARY DILUTION RECERTIFICATION MP 009

CURRENT DATE 1/5/2005 0:00

SOLUTION REFERENCE # IPL 388-116

SOLUTION # Th-1

Principal Radionuclide

Half Life, Years

Half Life, Days

²³⁰Th

7.540E+04

2.754E+07

Radionuclide ²³⁰Thorium

Reference Date 11/1/1991 0:00

Certified Activity 1.036E+00 μ Ci

Certified Concentration μ Ci per gram

Ampoule /Solution Gross 9.2660 Weight, Grams

Empty Ampoule 4.6218 Weight, Grams

Solution Net 4.6442 Weight, Grams

Total Activity in Ampoule 1.0360 μ Ci

Chemical Composition of Standard Solution

²³⁰Th(NO₃)₄ in 0.1N HNO₃

Dilution Instructions:

Dilution Solvent Used

0.1N HNO₃

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 1.0360 μ Ci

Which Equals 2.300E+06 dpm at the date listed above

And after dilution the activity of this solution is 2.300E+03 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 5, 2006

Recertified By

Date: 1/18/2005 9:42

Verified & Approved By

Date: 1/19/05

QC Approval

Date:



QUALITY CONTROL PROGRAM
MP-009

Rev. 8; 11/01/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

Solution Reference # MP-009 Date 1/5/2005 0:00
IPL 388-116 Solution # Th-1b
Principal Radionuclide ²³⁰Th Half Life, Years 7.540E+04 Half Life, Days 2.754E+07

Radionuclide of Interest ²³⁰Thorium
Parent Solution Conc. 2.30E+03 dpm/ml

Reference Date 11/1/1991 0:00

Chemical Composition of Standard Solution

²³⁰Th(NO₃)₄ in 0.1N HNO₃

Dilution Instructions:

Dilution Solvent Used

0.1N HNO₃

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 10.0000 ml
Total Activity: 2.2999E+04 dpm
Final Volume: 1000.00 ml

Final Activity Concentration: 2.2999E+01 dpm/ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 5, 2006

Recertified By [Signature]

Date: 1/18/2005 0:00

Verified & Approved By [Signature]

Date: 1/19/05

QC Approval [Signature]

Date: 1/19/05



**Isotope Products
Laboratories**

An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

1h-18

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

Radionuclide:	Th-229	Customer:	EBERLINE SERVICES		
Half-life:	7340 ± 160 years	P.O. No.:	00009633		
Catalog No.:	7229	Reference Date:	15-Jan-02	12:00	PST
Source No.:	867-54	Contained Radioactivity:	1.013	μCi	37.48 kBq
		(Th-229 only)			

Physical Description:

A. Mass of solution:	5.0147 g in 5 mL flame-sealed ampoule
B. Chemical form:	Th(NO ₃) ₄ in 0.1M HNO ₃
C. Carrier content:	10μg Th/mL
D. Density:	1.0016 g/mL @ 20°C.

Radioimpurities:

None detected (daughters in equilibrium)

Radionuclide Concentration: 0.2020 μCi/g, 7.474 kBq/g

Method of Calibration:

This source was prepared from a weighed aliquot of solution whose activity in μCi/g was determined using gamma ray spectrometry.

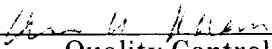
Peak energy used for integration:	193.5 keV
Branching ratio used:	0.0441 gammas per decay

Uncertainty of Measurement:

A. Type A (random) uncertainty:	± 0.7 %
B. Type B (systematic) uncertainty:	± 3.0 %
C. Uncertainty in aliquot weighing:	± 0.0 %
D. Total uncertainty at the 99% confidence level:	± 3.1 %

Notes:

- See reverse side for leak test(s) performed on this source.
- IPL participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).
- Nuclear data was taken from IAEA Technical Report Series No. 261.
- This solution has a working life of 5 years.


Quality Control


Date Signed

IPL Ref. No.: 867-54

ISO 9001 CERTIFIED

Medical Imaging Laboratory

24937 Avenue Tibbitts Valencia, California 91355

Industrial Gauging Laboratory

1800 North Keystone Street Burbank, California 91504

038



QUALITY CONTROL PROGRAM

MP-009

Rev.8; 1/10/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
MP 009

CURRENT DATE 1/12/2005 0:00

SOLUTION REFERENCE # IPL 867-54

SOLUTION # Th-18

Principal Radionuclide

Half Life, Years

Half Life, Days

²²⁹Th

7.340E+03

2.681E+06

Radionuclide ²²⁹Th

Reference Date 1/15/2002 0:00

Certified Activity 1.013E+00 μ CiCertified Concentration μ Ci per gram

Ampoule /Solution Gross	8.7752	Weight, Grams
Empty Ampoule	3.7591	Weight, Grams
Solution Net	5.0161	Weight, Grams
Total Activity in Ampoule	1.0130	μ Ci

Chemical Composition of Standard Solution

²²⁹Th(NO₃)₄ in 0.1M HNO₃

Dilution Instructions:

Dilution Solvent Used

0.1 M HNO₃

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 1.0130 μ Ci

Which Equals 2.249E+06 dpm at the date listed above

And after dilution the activity of this solution is 2.249E+03 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 12, 2005

Recertified By

Date: 1/12/2005 7:53

Verified & Approved By

Date: 1/19/05

QC Approval

Date: 1/19/05

**QUALITY CONTROL PROGRAM**

MP-009

Rev.8; 1/10/03

Title: Radioactive Reference Standards Solutions & Records

**EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION**

MP-009		Date	1/12/2005 0:00
Solution Reference #	IPL 867-54	Solution #	Th-18a
Principal Radionuclide	Half Life, Years	Half Life, Days	
²²⁸ Th	7.340E+03	2.681E+06	

Radionuclide of Interest	²²⁸ Th
Parent Solution Conc.	2.25E+03 dpm/ml

Reference Date 1/15/2002 0:00

Chemical Composition of Standard SolutionTH(NO₃)₄ in 0.1M HNO₃

Dilution Instructions:

Dilution Solvent Used

0.1M HNO₃**SECONDARY VOLUMETRIC DILUTION**

Vol. Parent Solution:	10.0000 ml
Total Activity:	2.2490E+04 dpm
Final Volume:	1000.00 ml

Final Activity Concentration: 2.2490E+01 dpm/ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 12, 2006

Recertified By

Date: 1/12/2005 7:53

Verified & Approved By

Date: 1/19/05

QC Approval

Date: 1/19/05

Ba-6
(f 6a)



National Institute of Standards & Technology

Certificate

Standard Reference Material 4251C Barium-133 Radioactivity Standard

This Standard Reference Material (SRM) consists of radioactive barium-133 chloride, non-radioactive barium chloride, and hydrochloric acid dissolved in 5 mL of distilled water. The solution is contained in a flame-sealed NIST borosilicate-glass ampoule. The SRM is intended for the calibration of ionization chambers and solid-state gamma-ray spectrometry systems.

Radiological Hazard

The SRM ampoule contains barium-133 with a total activity of approximately 2.5 MBq. Barium-133 decays by electron capture and during the decay process X-rays and gamma rays with energies from 4 to 400 keV are emitted. Most of these photons escape from the SRM ampoule and can represent a radiation hazard. Approximate unshielded dose rates at several distances (as of the reference time) are given in note [a]*. Appropriate shielding and/or distance should be used to minimize personnel exposure. The SRM should be used only by persons qualified to handle radioactive material.

Chemical Hazard

The SRM ampoule contains hydrochloric acid (HCl) with a concentration of 1 mole per liter of water. The solution is corrosive and represents a health hazard if it comes in contact with eyes or skin. If the ampoule is to be opened to transfer the solution, the recommended procedure is given on page 2. The ampoule should be opened only by persons qualified to handle both radioactive material and strong acid solution.

Storage and Handling

The SRM should be stored and used at a temperature between 5 and 65 °C. The solution in an unopened ampoule should remain stable and homogeneous until at least June 2004.

The ampoule (or any subsequent container) should always be clearly marked as containing radioactive material. If the ampoule is transported it should be packed, marked, labeled, and shipped in accordance with the applicable national, international, and carrier regulations. The solution in the ampoule is a dangerous good (hazardous material) both because of the radioactivity and because of the strong acid.

Preparation

This Standard Reference Material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, J.M.R. Hutchinson, Group Leader. The overall technical direction and physical measurements leading to certification were provided by L.L. Lucas of the Radioactivity Group and D.B. Golas, Nuclear Energy Institute Research Associate.

The support aspects involved in the preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program by N.M. Trahey.

Gaithersburg, Maryland 20899
October 1994

Thomas E. Gills, Chief
Standard Reference Materials Program



QUALITY CONTROL PROGRAM
QCP-009

Rev.8; 11/10/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
QCP 009-1

SOLUTION REFERENCE #		NIST SRM4251C	CURRENT DATE	11/6/2004 0:00
SOLUTION #		Ba-6		
Principal Radionuclide	Half Life, Years	Half Life, Days		
¹³³ Barium	1.048E+01	3.828E+03		
Radionuclide	¹³³ Barium	Reference Date	9/1/1993 0:00	
Certified Activity	μCi			
Certified Concentration	1.318E+01 μCi per gram			
Ampoule /Solution Gross	9.3081	Weight, Grams		
Empty Ampoule	4.2582	Weight, Grams		
Solution Net	5.0499	Weight, Grams		
Total Activity in Ampoule	66.5577	μCi		
Chemical Composition of Standard Solution				
¹³³ BaCl ₂ in 1M HCl				

Dilution Instructions: Dilution Solvent Used 1M HCl

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 66.5577 μCi Which Equals 1.478E+08 dpm at the date listed above

And after dilution the activity of this solution is 1.478E+05 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: November 6, 2005

Diluted By 

Date: 11/6/04

Verified & Approved By 

Date: 11/6/04

QC Approval 

Date: 11/6/04



QUALITY CONTROL PROGRAM

QCP-009

Rev.8; 11/10/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

Solution Reference # QCP-009-1-A Date 11/6/2004 0:00
NIST SRM4251C Solution # Ba-6a

Principal Radionuclide ¹³³Ba Half Life, Years 1.048E+01 Half Life, Days 3.828E+03

Radionuclide of Interest ¹³³Ba
Parent Solution Conc. 1.48E+05 dpm/ml

Reference Date 9/1/1993 0:00

Chemical Composition of Standard Solution

¹³³BaCl₂ in 1M HCl

Dilution Instructions:

Dilution Solvent Used

1M HCl

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 25.0000 ml
Total Activity: 3.6950E+06 dpm
Final Volume: 1000.00 ml

Final Activity Concentration: 3.6950E+03 dpm/ml

NOTES:

This activity concentration is based on the original
reference date listed above. All activities are
corrected to the date and time of analysis by the
laboratory data processing software.

Expiration Date: November 6, 2005Diluted By *[Signature]*Date: 11/6/04Verified & Approved By *[Signature]*Date: 11/6/04QC Approval *[Signature]*Date: 11/6/04

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

Ra-5
QA/QC REVIEWED
Date 2/8/94 Initials WT

Radionuclide: Ra-226
Half Life: 1600 \pm 7 years
Catalog No.: 7226
Source No.: 453-26

Customer: TMA EBERLINE
P.O.No.: VH1888
Reference Date: February 1 1994 12:00 PST.
Contained Radioactivity: (Ra-226) 1.001 μ Ci.
Contained Radioactivity: (Ra-226) 37.0 kBq.

Description of Solution

a. Mass of solution: 5.1864 g (in a 5 ml Flame Sealed Ampoule)
b. Chemical form: Ra(NO₃)₂ in 1 N HNO₃
c. Carrier content: None added
d. Density: 1.0318 g/ml @ 20°C.

Radioimpurities

None detected(other than daughters)

Radioactive Daughters

Rn-222, Po-218, At-218, Pb-214, Bi-214, Po-214, Tl-210, Pb-210, Bi-210, Po-210 and Tl-206.

Radionuclide Concentration

(Ra-226) 0.1929 μ Ci/g.

Method of Calibration

Weighed aliquots of the solution were assayed using gamma spectrometry:

Energy peak(s) integrated under: 186 keV.

Branching ratio(s) used: 0.0351 gamma rays per decay.

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration: $\pm 3.4\%$
b. Random uncertainty in assay: $\pm 3.1\%$
c. Random uncertainty in weighing(s): $\pm 0.2\%$
d. Total uncertainty at the 99% confidence level: $\pm 4.6\%$

NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

Leak Test(s)

See reverse side for Leak Test(s) applied to this source.

Notes

1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).



ISOTOPE PRODUCTS LABORATORIES
1800 North Keystone Street
Burbank, California 91504
(818) 843 - 7000

Ana H. Kuen
QUALITY CONTROL

Feb. 3, 1994
Date Signed



QUALITY CONTROL PROGRAM

MP 009

Rev.8; 11/01/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY RADIOACTIVE REFERENCE SOLUTIONS PRIMARY DILUTION RECERTIFICATION MP 009

SOLUTION REFERENCE # IPL 453-26 CURRENT DATE 1/3/2005 0:00
SOLUTION # Ra-5

Principal Radionuclide ²²⁸Radium Half Life, Years 1.600E+03 Half Life, Days 5.844E+05

Radionuclide ²²⁸Radium Reference Date 2/1/1994 0:00
Certified Activity 1.001E+00 μCi
Certified Concentration $\mu\text{Ci per gram}$

Ampoule /Solution Gross Weight, Grams
Empty Ampoule Weight, Grams
Solution Net Weight, Grams
Total Activity in Ampoule 1.0010 μCi

Chemical Composition of Standard Solution

²²⁸Ra(NO₃)₂ in 1M HNO₃

Dilution Instructions:

Dilution Solvent Used

1M HNO₃

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 1.0010 μCi Which Equals 2.222E+06 dpm at the date listed above

And after dilution the activity of this solution is 2.222E+03 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 3, 2006

Diluted By [Signature]

Date: 1/3/2005

Verified & Approved By [Signature]

Date: 1/3/2005

QC Approval [Signature]

Date: 1/3/2005



QUALITY CONTROL PROGRAM

MP 009

Rev. 8; 11/01/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY RADIOACTIVE REFERENCE STANDARD SOLUTIONS SECONDARY DILUTION RECERTIFICATION

MP 009		Date	1/3/2005 0:00
Solution Reference #	IPL-453-26	Solution #	Ra-5b
Principal Radionuclide	Half Life, Years	Half Life, Days	
²²⁶ Radium	1.600E+03	5.844E+05	

Radionuclide of Interest	²²⁶ Radium
Parent Solution Conc.	2.22E+03 dpm/ml

Reference Date 2/1/1994 0:00

Chemical Composition of Standard Solution

²²⁶Ra(NO₃)₂ in 1M HNO₃

Dilution Instructions:

Dilution Solvent Used

1M HNO₃

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution:	20.0000 ml
Total Activity:	4.4440E+04 dpm
Final Volume:	1000.00 ml

Final Activity Concentration: 4.4440E+01 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

NOTES:

Expiration Date: January 3, 2006

Diluted By

Date: 1/3/2005 0:00

Verified & Approved By

Date: 1/3/2005 0:00

QC Approval

Date: 1/24/05 38355

SECTION VI
QUALITY CONTROL SAMPLE RESULTS SUMMARY

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08094	UUISO	1	pCi	g	Missouri Dept. of Natural Resources

Laboratory Control Sample

Analyte	Normalized Difference	LCS Measured	TPU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	TPU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
U-234	0.05	100.50%	18.00%	100.00%	3.60%	7.98E+00	2.87E-01	8.02E+00	1.44E+00	U-8a	3.52E+01	3.60E+00	5.03E-01
U-235	0.09	102.09%	45.86%	100.00%	3.60%	3.62E-01	1.30E-02	3.70E-01	1.70E-01	U-8a	1.60E+00	3.60E+00	5.03E-01
U-238	0.84	108.40%	17.89%	100.00%	3.60%	7.78E+00	2.80E-01	8.43E+00	1.51E+00	U-8a	3.44E+01	3.60E+00	5.03E-01

Matrix Spike

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS TPU	Sample Result	Sample TPU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)

Replicate Sample

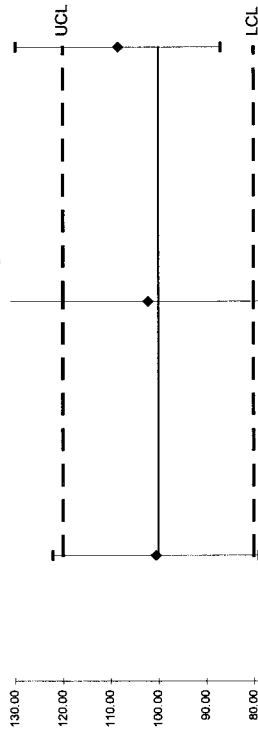
Analyte	Normalized Difference	RPD	Original Result	Original TPU	Replicate Result	Replicate TPU	LCS Relative Bias	LCS % R	LCS ND	MS % R	MS ND	Rep RPD	Rep ND
U-234	0.35	7.44	8.76E-01	2.57E-01	9.44E-01	2.71E-01	1.00	OK	OK			OK	OK
U-235	0.41	27.20	9.73E-02	8.10E-02	7.40E-02	7.53E-02	1.02	OK	OK			INV	OK
U-238	1.32	29.26	8.90E-01	2.59E-01	6.63E-01	2.16E-01	1.08	OK	OK			INV	OK

QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original TPU	Replicate Result	Replicate TPU	LCS Relative Bias	LCS % R	LCS ND	MS % R	MS ND	Rep RPD	Rep ND

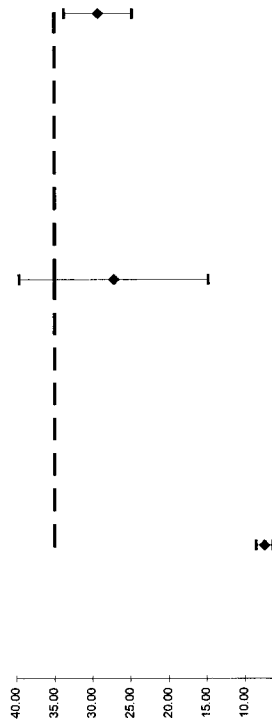
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08094	UUISO	1	pCi	g	Missouri Dept. of Natural Resources

LCS % Recovery



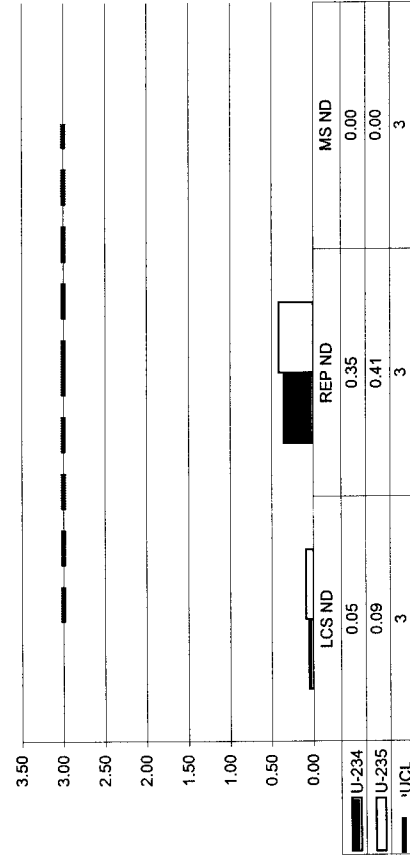
	U-234	U-235	U-238
Lower Error	78.90	52.62	86.91
Upper Error	122.10	151.55	129.89
%R	100.50	102.09	108.40
LCL	80	80	80
Mean	100	100	100
UCL	120	120	120

Replicate Sample RPD



	U-234	U-235	U-238
Lower Error	8.52	39.61	33.74
Upper Error	6.36	14.80	24.78
RPD	7.44	27.20	29.26
CL	35	35	35

Normalized Difference



WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08094	ThISO	1	pCi	g	Missouri Dept. of Natural Resources

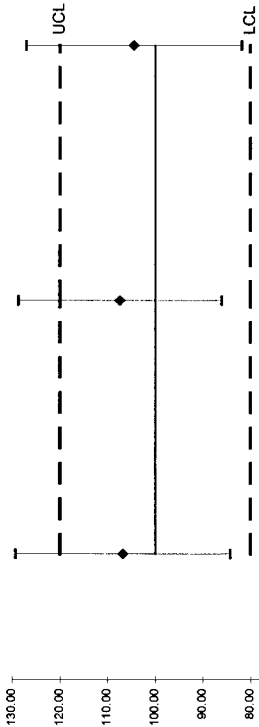
Laboratory Control Sample													
Analyte	Normalized Difference	LCS Measured	TPU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	TPU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
TH-228	0.65	106.76%	18.93%	100.00%	3.60%	4.74E+00	1.71E-01	5.06E+00	9.58E-01	Th-8b	1.04E+02	3.60E+00	1.02E-01
TH-230	0.72	107.35%	18.63%	100.00%	2.70%	5.33E+00	1.44E-01	5.72E+00	1.07E+00	Th-1b	2.35E+01	2.70E+00	5.03E-01
TH-232	0.43	104.40%	18.98%	100.00%	3.60%	4.74E+00	1.71E-01	4.95E+00	9.39E-01	Th-8b	1.04E+02	3.60E+00	1.02E-01

Matrix Spike													
Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS TPU	Sample Result	Sample TPU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)

Replicate Sample							QC Summary						
Analyte	Normalized Difference	RPD	Original Result	Original TPU	Replicate Result	Replicate TPU	LCS Relative Bias	LCS % R	LCS ND	MS % R	MS ND	Rep RPD	Rep ND
TH-228	0.63	17.54	5.86E-01	2.25E-01	4.91E-01	1.88E-01	1.07	OK	OK			OK	OK
TH-230	0.04	0.79	1.39E+00	3.91E-01	1.40E+00	3.66E-01	1.07	OK	OK			OK	OK
TH-232	0.94	22.12	8.85E-01	2.88E-01	7.09E-01	2.32E-01	1.04	OK	OK			INV	OK

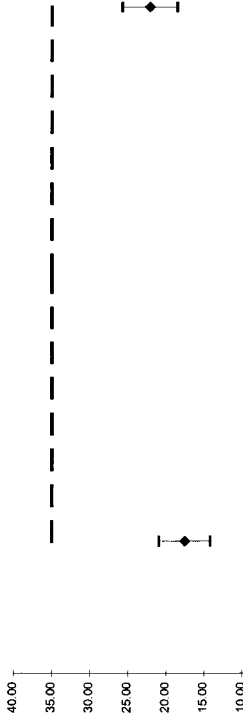
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08094	ThISO	1	pCi	g	Missouri Dept. of Natural Resources

LCS % Recovery



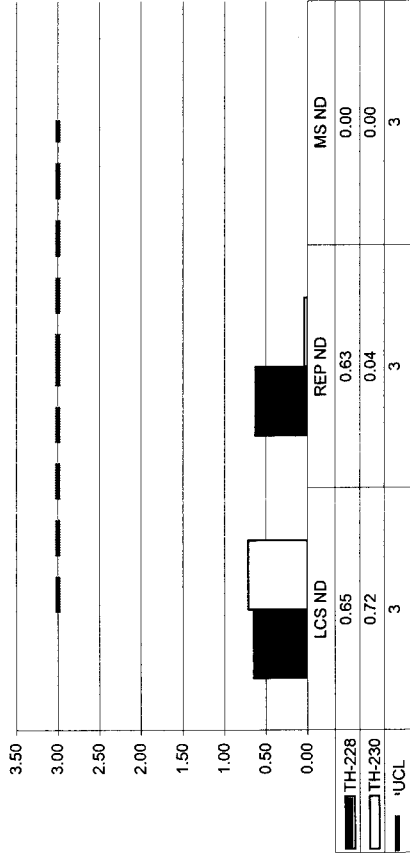
	TH-228	TH-230	TH-232
Lower Error	84.23	86.02	81.82
Upper Error	129.29	128.68	126.98
%R	106.76	107.35	104.40
LCL	80	80	80
Mean	100	100	100
UCL	120	120	120

Replicate Sample RPD



	TH-228	TH-230	TH-232
Lower Error	20.90	0.90	25.72
Upper Error	14.17	0.68	18.51
RPD	17.54	0.79	22.12
-CL	35	35	35

Normalized Difference



No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08094	Ra226	1	pCi	g	Missouri Dept. of Natural Resources

Laboratory Control Sample

Analyte	Normalized Difference	LCS Measured	TPU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	TPU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
RA-226	0.27	98.04%	14.13%	100.00%	4.60%	1.03E+01	4.73E-01	1.01E+01	1.42E+00	Ra-5b	4.42E+01	4.60E+00	5.16E-01

Matrix Spike

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS TPU	Sample Result	Sample TPU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)

Replicate Sample

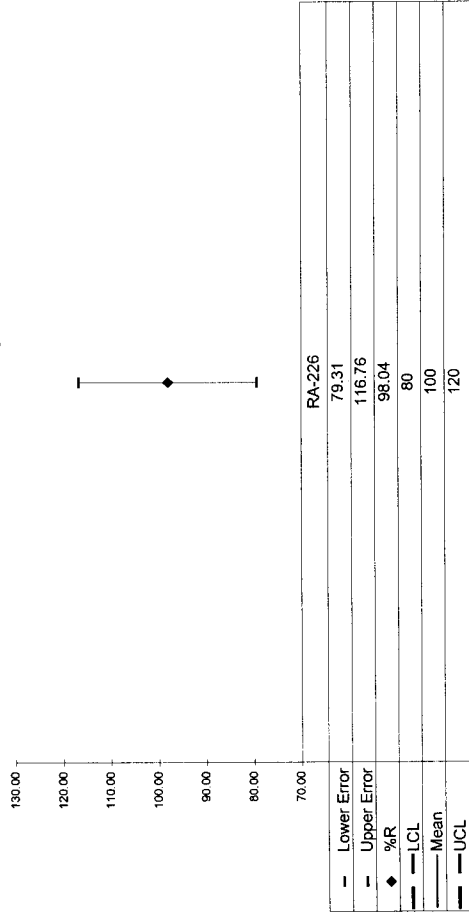
Analyte	Normalized Difference	RPD	Original Result	Original TPU	Replicate Result	Replicate TPU	LCS Relative Bias	LCS % R	LCS ND	MS % R	MS ND	Rep RPD	Rep ND
RA-226	0.74	18.31	1.18E+00	3.92E-01	9.79E-01	3.41E-01	0.98	OK	OK			OK	OK

QC Summary

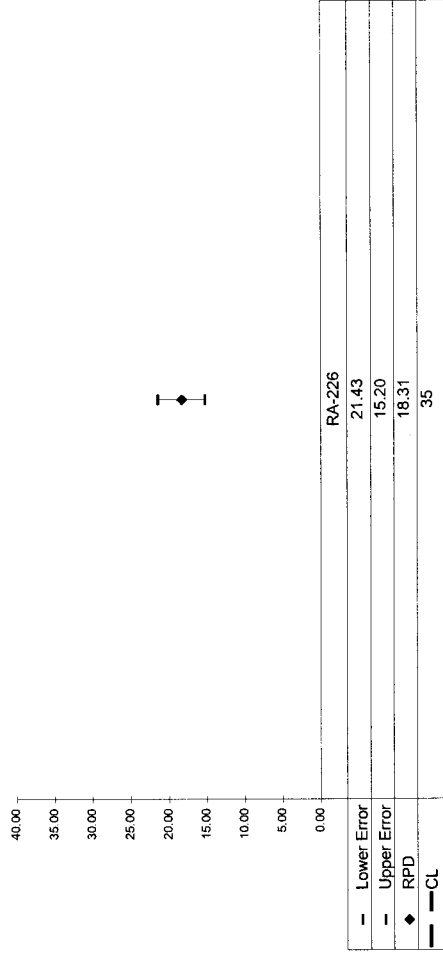
Analyte	Normalized Difference	RPD	Original Result	Original TPU	Replicate Result	Replicate TPU	LCS Relative Bias	LCS % R	LCS ND	MS % R	MS ND	Rep RPD	Rep ND
RA-226	0.74	18.31	1.18E+00	3.92E-01	9.79E-01	3.41E-01	0.98	OK	OK			OK	OK

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08094	Ra226	1	pCi	g	Missouri Dept. of Natural Resources

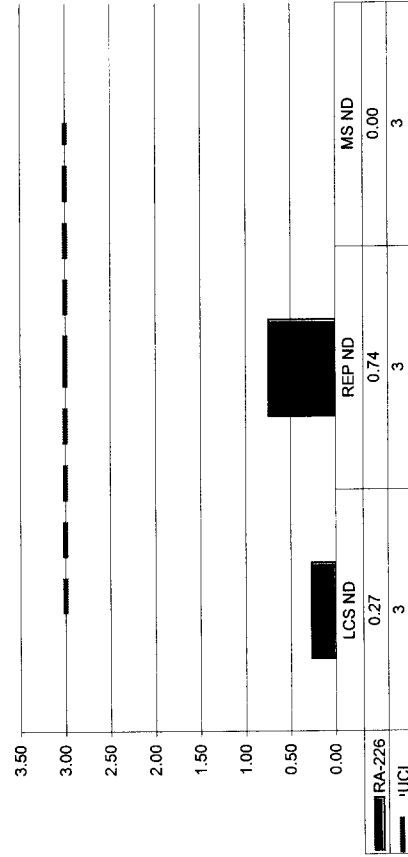
LCS % Recovery



Replicate Sample RPD




Normalized Difference



No Matrix Spike

SECTION VII
LABORATORY TECHNICIAN'S NOTES
& RUN LOGS

ISO-U NOTES

 EBERLINE SERVICES Work Order Analysis Notes	Oak Ridge Laboratory	Internal Work Order	05-08094
	601 Scarboro Rd.	Analysis Code	UUIISO
	Oak Ridge, TN 37830	Run Number	1
Voice: 865.481.0683			
www.eberlineservices.com			

#	Date	Dept	User	Notes
1	08/23/05 10:45	PREP	JBARNARD	ALIUQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS

JBarnard
8/23/05

 EBERLINE SERVICES Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	05-08094
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/23/05 10:45	PREP	JBARNARD	ALIUQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS
2	09/01/05 13:49	CHEM	BNEWTON	Used column separation technique to elute Uranium fraction (steps 12.2 to 12.2.7 in AP-005 rev. 9)
3	09/01/05 17:03	CHEM	BNEWTON	Filtered samples and sent to count room (steps 12.2.7 to 12.5.5 in AP-005 Rev. 9)

Bogey Newton 9/1/05



EBERLINE
SERVICES

Reagents Used in an Analysis

Internal Work Order

05-08094

Analysis Code

Run

UUIISO

1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
003144P	Hydrofluoric Acid	Reagent Grade	JBARNARD	8/23/2005
003250P	Nitric Acid	Reagent Grade	JBARNARD	8/23/2005
002930P	Perchloric Acid	Reagent Grade	JBARNARD	8/23/2005
000059P	Sulfuric Acid	Reagent Grade	JBARNARD	8/23/2005
003131P	Anion Exchange Resin	Reagent Grade	TSMITH	8/31/2005
003271P	Anion Exchange Resin	Reagent Grade	TSMITH	8/31/2005
003271P	Anion Exchange Resin	Reagent Grade	BNEWTON	8/31/2005
003291S	HCl - HF	6.5N - 0.04N	BNEWTON	9/1/2005
003210S	Hydrochloric Acid	6.5N	BNEWTON	9/1/2005
003306S	Hydrochloric Acid	8N	BNEWTON	9/1/2005
003279P	Hydrochloric Acid	Reagent Grade	BNEWTON	9/1/2005
003321S	HCl - NH4I	8N - 0.1M	BNEWTON	9/1/2005
003279D02	Hydrochloric Acid	0.5N	BNEWTON	9/1/2005
003297S	Carbon substrate	Solution	BNEWTON	9/1/2005
002827P	Reagent Alcohol	Reagent Grade	BNEWTON	9/1/2005
003143P	Hydrofluoric Acid	Reagent Grade	BNEWTON	9/1/2005
002954S	Neodymium Carrier	1 mg/ml	BNEWTON	9/1/2005
002985P	Titanous Chloride	Reagent Grade	BNEWTON	9/1/2005

ALPHA 2

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Date	Sample #	Client	Load Time	Cl. Time	Analysis	Veal
8-30-05	05081094(1-7)	PCC	0737	2HR-50mm	Th	20
8-30-05	05081144(1-3,6)	Depth	0737	2HR-50mm	Th	20
8-30-05	05081114(1-3,5)	NFT	0737	2HR-50mm	Un	20
8-30-05	05081124(1-12)	PARSONS	1041	5HR-50mm	Un	20
8-30-05	05081045(1-3)	CAS	1041	5HR-35mm	Am	20
8-30-05	0508095A(11-16)	Mizzou	1829	2HR-50mm	Ra	1R
8-31-05	Daily PUSOK	LAB	0454	10mm	NA	20
8-31-05	0508124A(1-6)	CAS	0712	2HR-50mm	Th	20
8-31-05	0508092A(1-9)	URS	0712	2HR-50mm	Un	20
8-31-05	0508124A(5,6)	CAS	040	2HR-50mm	Un	20
8-31-05	0508077B(4,6,14,14)	CAS	1040	2HR-50mm	Am	20
8-31-05	0508124A(1,2)	CAS	1040	2HR-50mm	Am	20
8-31-05	0508124A(6)	CAS	1352	2HR-50mm	Am/Am	1R
9-1-05	Daily PUSOK	LAB	0415	10mm	NA	20
9-1-05	CALIBRATION	LAB	0451	2 1/2 HR	QISO	20
9-1-05	0508117A(13)	CAS	0815	2HR-50mm	Un	20
9-1-05	0508129A(1-4,6,8)	Duestek	0815	2HR-50mm	Un	20
9-1-05	0508095A(1-8)	MDN	0815	2HR-50mm	Un	20
9-2-05	Daily PUSOK	LAB	0421	10mm	NA	20
9-2-05	0508094A(16,17)	MDN	0855	2HR-50mm	Th	20
9-2-05	0508129A(1-4,6,8)	Duestek	0855	2HR-50mm	Th	20
9-2-05	0508141A(1-4)	CAS	0855	2HR-50mm	Un	20
9-2-05	0508094A(1-3)	MDN	0855	2HR-50mm	Un	20

ALPHA-3

17

DATE

SAMPLE #

CLIENT

LOAD TIME

CT. TIME

ANALYSIS

TECH

9-2-05

05081264(1,2)

CAS


0950

2HR 50min.

UN

JP

ISO-TH NOTES

 EBERLINE SERVICES Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	05-08094
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/23/05 10:47	PREP	JBARNARD	ALIUQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- PRECIPITATED WITH POTASSIUM SULFATE AND BA CARRIER- DECANTED SAMPLES AND CENTRIFUGED- ADDED .25M EDTA TO PRECIP, VORTEXED AND PUT SAMPLES IN A HOT WATER BATH- ADDED 10M KOH AND TICL3 AND PUT SAMPLES BACK IN THE HOT WATER BATH- VORTEXED AND CENTRIFUGED- ADDED 30MLS OF 8N HNO3 TO THE THORIUM PRECIP, VORTEXED AND SUBMITTED TO SEPARATIONS

JBarnard
8/23/05

 EBERLINE SERVICES Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	05-08094
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/23/05 10:47	PREP	JBARNARD	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- PRECIPITATED WITH POTASSIUM SULFATE AND BA CARRIER- DECANTED SAMPLES AND CENTRIFUGED- ADDED .25M EDTA TO PRECIP, VORTEXED AND PUT SAMPLES IN A HOT WATER BATH- ADDED 10M KOH AND TICL3 AND PUT SAMPLES BACK IN THE HOT WATER BATH- VORTEXED AND CENTRIFUGED- ADDED 30MLS OF 8N HNO3 TO THE THORIUM PRECIP, VORTEXED AND SUBMITTED TO SEPARATIONS
2	09/01/05 11:31	CHEM	TSMITH	Followed steps 12.3 to 12.3.4 in AP-005 rev. 9 . (Column separation for Thorium)

SM lb
9-1-05

 EBERLINE SERVICES Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	05-08094
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/23/05 10:47	PREP	JBARNARD	ALIUQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- PRECIPITATED WITH POTASSIUM SULFATE AND BA CARRIER- DECANTED SAMPLES AND CENTRIFUGED- ADDED .25M EDTA TO PRECIP, VORTEXED AND PUT SAMPLES IN A HOT WATER BATH- ADDED 10M KOH AND TICL3 AND PUT SAMPLES BACK IN THE HOT WATER BATH- VORTEXED AND CENTRIFUGED- ADDED 30MLS OF 8N HNO3 TO THE THORIUM PRECIP, VORTEXED AND SUBMITTED TO SEPARATIONS
2	09/01/05 11:31	CHEM	TSMITH	Followed steps 12.3 to 12.3.4 in AP-005 rev. 9 . (Column separation for Thorium)
3	09/01/05 17:01	CHEM	BNEWTON	Filtered samples and sent to count room (steps 12.3.4 to 12.5.5 in AP-005 Rev. 9)

Bobby Newton 9/1/05



EBERLINE
SERVICES

Reagents Used in an Analysis

Internal Work Order

05-08094

Analysis Code

Run

ThISO

1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
003144P	Hydrofluoric Acid	Reagent Grade	JBARNARD	8/23/2005
003137D07	Nitric Acid	8N	JBARNARD	8/23/2005
003250P	Nitric Acid	Reagent Grade	JBARNARD	8/23/2005
002930P	Perchloric Acid	Reagent Grade	JBARNARD	8/23/2005
001365D01	Potassium Hydroxide	10M	JBARNARD	8/23/2005
003136P	Potassium Sulfate	Reagent Grade	JBARNARD	8/23/2005
000059P	Sulfuric Acid	Reagent Grade	JBARNARD	8/23/2005
001010P	Titanous Chloride	Reagent Grade	JBARNARD	8/23/2005
003255D02	Barium Carrier	50 mg/ml	JBARNARD	8/23/2005
003272S	EDTA	0.25M	JBARNARD	8/23/2005
003131P	Anion Exchange Resin	Reagent Grade	TSMITH	8/31/2005
003271P	Anion Exchange Resin	Reagent Grade	BNEWTON	8/31/2005
003306S	Hydrochloric Acid	8N	TSMITH	9/1/2005
003249D05	Nitric Acid	8N	TSMITH	9/1/2005
000051D07	Cerium Carrier (Alpha iso)	Solution	BNEWTON	9/1/2005
003143P	Hydrofluoric Acid	Reagent Grade	BNEWTON	9/1/2005
003297S	Carbon substrate	Solution	BNEWTON	9/1/2005
002827P	Reagent Alcohol	Reagent Grade	BNEWTON	9/1/2005

ACT	DATE	SAMPLE#	CLIENT	ALPHA 1	CT. TIME	125	
				LOAD TIME		ANALYSIS	TECH
	8-30-05	0508111A(1-3.5)	NFT	0715	5HR. 35min	NP	JP
	8-30-05	0508111A(1-3.5)	NFT	0715	5HR. 35min	Pa	JP
	8-30-05	0508112A(1-7)	PARSONS	0715	5HR. 35min	TH	JP
	8-30-05	0508112A(10-12)	Parsons	1307	5HR 35min	Am	MR
	8-31-05	Daily PULSE	LAB	0434	10min.	NA	JP
	8-31-05	CALIBRATIONS	LAB	0452	2 1/2 HR	OXISO	JP
	8-31-05	0508092A(10-20)	URS	0745	2HR 50min	UN	JP
	8-31-05	0508124A(1-4)	CAS	0745	2HR. 50min	UN	JP
	8-31-05	0508124A(3-5)	CAS	1101	2HR. 50min	CM	JP
	8-31-05	0508130A(1-4)	PARSONS	1101	5HR 35min	TH	JP
	8-31-05	0508130A(1-4)	PARSONS	1101	5HR. 35min	UN	JP
	8-31-05	0508130A(1-4)	PARSONS	1101	5HR 35min	Am	JP
	9-1-05	Daily PULSE	LAB	0415	10min.	NA	JP
	9-1-05	0508129A(1-4,6,8)	DWIGHT	0707	2HR. 50min.	NP	JP
	9-1-05	0508092A(1-9)	URS	0707	2HR. 50min	TH	JP
	9-1-05	0508095A(1-16)	MPV	1030	2HR 50min.	UN	JP
	9-1-05	0508129A(1-4,6,8)	DWIGHT	1030	2HR. 50min	Am/UN	JP
	9-1-05	0508128A(1-7)	DWIGHT	1654	5HR 35min	Ra	MR
	9-2-05	Daily PULSE	LAB	0421	10min.	NA	JP
	9-2-05	0508094A(1-15)	MON	0812	2HR. 50min.	TH	JP

ALPHA 2

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Date	Sample #	Client	Load Time	Cl. Time	Analysis	Neck
8-30-05	05081094(1-7)	PCC	0737	2HR-50mm	Th	20
8-30-05	05081144(1-3,6)	DoH	0737	2HR-50mm	Th	20
8-30-05	05081114(1-3,5)	NFT	0737	2HR-50mm	UU	20
8-30-05	05081124(1-12)	PARSONS	1041	5HR-35mm	UU	20
8-30-05	05081044(1-3)	CAS	1041	5HR-35mm	Am	20
8-30-05	05080954(11-16)	Mizzou	1829	2HR-50mm	Ra	1R
8-31-05	Daily PULSOK	LAB	0434	10mm	NA	20
8-31-05	05081244(1-6)	CAS	0712	2HR-50mm	Th	20
8-31-05	05080924(1-9)	URS	0712	2HR-50mm	UU	20
8-31-05	05081244(5,6)	CAS	1040	2HR-50mm	UU	20
8-31-05	05080774(4,9,10,12,14)	CAS	1040	2HR-50mm	Am	20
8-31-05	05081244(1,2)	CAS	1040	2HR-50mm	Am	20
8-31-05	05081244(6)	CAS	1352	2HR-50mm	Am/Am	1R
9-1-05	Daily PULSOK	LAB	0415	10mm	NA	20
9-1-05	CALIBRATION	LAB	0451	2 1/2 HR	NISO	20
9-1-05	05081174(13)	CAS	0815	2HR-50mm	UU	20
9-1-05	05081294(1-4,6,8)	Questek	0815	2HR-50mm	UU	20
9-1-05	05080954(1-8)	MDN	0815	2HR-50mm	UU	20
9-2-05	Daily PULSOK	LAB	0421	10mm	NA	20
9-2-05	05080944(14,17)	MDN	0855	2HR-50mm	Th	20
9-2-05	05081294(1-4,6,8)	Questek	0855	2HR-50mm	Th	20
9-2-05	05081414(1-4)	CAS	0855	2HR-50mm	UU	20
9-2-05	05080944(1-3)	MDN	0855	2HR-50mm	UU	20

RA-226 NOTES

 EBERLINE SERVICES Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	05-08094
		Analysis Code	Ra226
		Run Number	1

#	Date	Dept	User	Notes
1	08/23/05 10:50	PREP	JBARNARD	ALIUQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- PH'D SAMPLES TO 2.8-3.0- PRECIPITATED WITH POTASSIUM SULFATE AND BA AND PB CARRIERS- DECANTED SAMPLES AND CENTRIFUGED- ADDED .25M EDTA AND PHENOLPHTHALIEN TO PRECIP, VORTEXED AND PUT SAMPLES IN A HOT WATER BATH- VORTEXED AND CHECKED PH- PUT SAMPLES BACK IN THE HOT WATER BATH- VORTEXED AND CENTRIFUGED- TRANSFERRED SUPERNATE INTO CLEAN C-TUBES AND SUBMITTED TO SEPARATIONS

[Handwritten signature]
5/23/05

**EBERLINE**
SERVICES**Work Order Analysis Notes****Oak Ridge Laboratory****601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com**

Internal Work Order

05-08094

Analysis Code


Ra226

Run Number

1

#	Date	Dept	User	Notes
1	08/23/05 10:50	PREP	JBARNARD	ALIUQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- PH'D SAMPLES TO 2.8-3.0- PRECIPITATED WITH POTASSIUM SULFATE AND BA AND PB CARRIERS- DECANTED SAMPLES AND CENTRIFUGED- ADDED .25M EDTA AND PHENOLPHTHALIEN TO PRECIP, VORTEXED AND PUT SAMPLES IN A HOT WATER BATH- VORTEXED AND CHECKED PH- PUT SAMPLES BACK IN THE HOT WATER BATH- VORTEXED AND CENTRIFUGED- TRANSFERRED SUPERNATE INTO CLEAN C-TUBES AND SUBMITTED TO SEPARATIONS
2	08/26/05 13:20	CHEM	DJOHNSON	Received samples from prep lab in EDTA. Re-precipitated samples with glacial acetic acid and ammonium sulfate. Filtered samples on tarred filters. Rinsed c-tubes and funnels with diH2O and filtered. Dried and reweighed sample filters. No problems were noted in this set. Submitted samples to the count room.

8/26/05

 EBERLINE SERVICES Reagents Used in an Analysis		Internal Work Order		
		05-08094		
		Analysis Code		Run
		Ra226		1
Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
001772P	Ammonium Hydroxide	Reagent Grade	JBARNARD	8/23/2005
001755S	Phenolphthalein Indicator	0.1%	JBARNARD	8/23/2005
000059P	Sulfuric Acid	Reagent Grade	JBARNARD	8/23/2005
003144P	Hydrofluoric Acid	Reagent Grade	JBARNARD	8/23/2005
003250P	Nitric Acid	Reagent Grade	JBARNARD	8/23/2005
002930P	Perchloric Acid	Reagent Grade	JBARNARD	8/23/2005
003136P	Potassium Sulfate	Reagent Grade	JBARNARD	8/23/2005
003255D01	Barium Carrier	1 mg/ml	JBARNARD	8/23/2005
001848D10	Lead Carrier	40 mg/ml	JBARNARD	8/23/2005
003272S	EDTA	0.25M	JBARNARD	8/23/2005
000868P	Acetic Acid	Reagent Grade	DJOHNSON	8/26/2005
002851D02	Ammonium Sulfate	200 mg/ml	DJOHNSON	8/26/2005

ALPHA-3

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DATE	SAMPLE #	CLIENT	LOAD TIME	P. TIME	ANALYSIS	TRCH
8-26-05	050810YA (1-4)	CAS	0823	5HR. 35min	Uu	72
8-26-05	0508110A (8-11,15)	CAS	0806	2HR. 50min.	Pa	72
8-26-05	0508110A (1-7)	CAS	0806	2HR. 50min.	Am/ten	72
8-26-05	Weekly Bkgd	LAB	1200	16HR 40min	α -usu	172
8-27-05	Domy Puisse	LAS	0808	10min.	NA	72
8-27-05	0508094A (1-17)	MDN	0854	2HR. 50min	Pa	72

SECTION VIII
ANALYTICAL DATA (ISOTOPIC URANIUM)

05-08094
UUISO
Run 1

Printed: 9/2/2005 6:40 AM
Page 1 of 3

Work Order	05-08094
Analysis Code	UUISO
Run	1
Date Received	8/19/2005
Lab Deadline	9/9/2005
Client	Missouri Dept. of Natural Resources
Project	B3Z02092
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EML U-02 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	U-232
Radiometric Sol#	U-10a
Tracer Act (dpm/g)	20.756
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		08/22/05 00:00	1.0000E+00
02	MBL	BLANK		08/22/05 00:00	1.0000E+00
03	DUP	VPSCR081705SL01	42	08/17/05 10:02	1.0128E+00
04	DO	VPSCR081705SL01	42	08/17/05 10:02	1.0602E+00
05	TRG	VPSCR081705SL02	35	08/17/05 10:04	1.0031E+00
06	TRG	VPSCR081705SL03	45	08/17/05 10:08	1.0334E+00
07	TRG	VPSCR081705SL04	38	08/17/05 10:09	1.0182E+00
08	TRG	VPSCR081705SL05	41	08/17/05 10:11	1.0459E+00
09	TRG	VPSCR081705SL06	38	08/17/05 10:18	1.0206E+00
10	TRG	VPSCR081705SL07	41	08/17/05 10:20	1.0670E+00
11	TRG	VPSCR081705SL08	47	08/17/05 10:21	9.9410E-01
12	TRG	VPSCR081705SL09	37	08/17/05 10:23	1.1611E+00
13	TRG	VPSCR081705SL10	30	08/17/05 10:25	1.0491E+00
14	TRG	VPSCR081705SL11	42	08/17/05 10:27	1.1018E+00
15	TRG	VPSCR081705SL12	37	08/17/05 10:30	1.1677E+00
16	TRG	VPSCR081705SL13	46	08/17/05 10:32	1.0222E+00
17	TRG	VPSCR081705SL14	41	08/17/05 10:44	1.0246E+00

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS	0.6181	12.8										
02	MBL	0.6094	12.6										
03	DUP	0.6044	12.5										
04	DO	0.5977	12.4										
05	TRG	0.6066	12.6										
06	TRG	0.6060	12.6										
07	TRG	0.6024	12.5										
08	TRG	0.5975	12.4										
09	TRG	0.5913	12.3										
10	TRG	0.6156	12.8										
11	TRG	0.6087	12.6										
12	TRG	0.6076	12.6										
13	TRG	0.6026	12.5										
14	TRG	0.6007	12.5										
15	TRG	0.6046	12.5										
16	TRG	0.6052	12.6										
17	TRG	0.6064	12.6										

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS			08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
02	MBL			08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
03	DUP			08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
04	DO	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
05	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
06	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
07	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
08	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
09	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
10	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
11	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
12	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
13	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
14	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
15	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
16	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		
17	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:59	JBARNARD	09/02/05 06:40	BNEWTON		

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only.

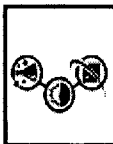
** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

	Client	Missouri Dept of Natural Resources	
	Eberline Services Work Order	05-08094	
	Analysis Code	UIISO	
	Run	1	

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-234	LCS	LCS	pCi/g	8.02E+00	1.35E+00	1.07E-01	7.98E+00	100.50	OK		OK	
02	U-234	MBL	BLANK	pCi/g	1.82E-01	1.09E-01	1.04E-01					OK	OK
03	U-234	DUP	VPSCR081705SL01	pCi/g	9.44E-01	2.64E-01	7.24E-02				OK	OK	
04	U-234	DO	VPSCR081705SL01	pCi/g	8.76E-01	2.51E-01	7.13E-02					OK	
05	U-234	TRG	VPSCR081705SL02	pCi/g	9.74E-01	2.70E-01	3.67E-02					OK	
06	U-234	TRG	VPSCR081705SL03	pCi/g	9.13E-01	2.68E-01	8.67E-02					OK	
07	U-234	TRG	VPSCR081705SL04	pCi/g	7.26E-01	2.06E-01	5.10E-02					OK	
08	U-234	TRG	VPSCR081705SL05	pCi/g	1.02E+00	2.84E-01	6.49E-02					OK	
09	U-234	TRG	VPSCR081705SL06	pCi/g	9.27E-01	2.50E-01	5.59E-02					OK	
10	U-234	TRG	VPSCR081705SL07	pCi/g	1.01E+00	2.92E-01	7.01E-02					OK	
11	U-234	TRG	VPSCR081705SL08	pCi/g	1.03E+00	2.81E-01	7.38E-02					OK	
12	U-234	TRG	VPSCR081705SL09	pCi/g	1.04E+00	2.63E-01	3.05E-02					OK	
13	U-234	TRG	VPSCR081705SL10	pCi/g	1.26E+00	3.21E-01	3.70E-02					OK	
14	U-234	TRG	VPSCR081705SL11	pCi/g	7.80E-01	2.32E-01	3.52E-02					OK	
15	U-234	TRG	VPSCR081705SL12	pCi/g	1.03E+00	3.40E-01	1.12E-01					OK	
16	U-234	TRG	VPSCR081705SL13	pCi/g	8.51E-01	2.41E-01	5.81E-02					OK	
17	U-234	TRG	VPSCR081705SL14	pCi/g	9.71E-01	2.67E-01	7.14E-02					OK	

	Client	Missouri Dept. of Natural Resources		
	Eberline Services Work Order	05-08094	UISO	1
	Analysis Code	Run		

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
01	U-234	LCS	08/22/05 00:00	1.00E+00	92.26				9/2/2005 6:40	
02	U-234	MBL	08/22/05 00:00	1.00E+00	93.12				9/2/2005 6:40	
03	U-234	DUP	08/17/05 10:02	1.01E+00	101.00				9/2/2005 6:40	
04	U-234	DO	08/17/05 10:02	1.06E+00	89.40				9/2/2005 6:40	
05	U-234	TRG	08/17/05 10:04	1.00E+00	96.79				9/2/2005 6:40	
06	U-234	TRG	08/17/05 10:08	1.03E+00	87.15				9/2/2005 6:40	
07	U-234	TRG	08/17/05 10:09	1.02E+00	112.97				9/2/2005 6:40	
08	U-234	TRG	08/17/05 10:11	1.05E+00	86.06				9/2/2005 6:40	
09	U-234	TRG	08/17/05 10:18	1.02E+00	107.13				9/2/2005 6:40	
10	U-234	TRG	08/17/05 10:20	1.07E+00	80.27				9/2/2005 6:40	
11	U-234	TRG	08/17/05 10:21	9.94E-01	93.92				9/2/2005 6:40	
12	U-234	TRG	08/17/05 10:23	1.16E+00	96.12				9/2/2005 6:40	
13	U-234	TRG	08/17/05 10:25	1.05E+00	85.31				9/2/2005 6:40	
14	U-234	TRG	08/17/05 10:27	1.10E+00	85.26				9/2/2005 6:40	
15	U-234	TRG	08/17/05 10:30	1.17E+00	52.44				9/2/2005 6:40	
16	U-234	TRG	08/17/05 10:32	1.02E+00	100.72				9/2/2005 6:40	
17	U-234	TRG	08/17/05 10:44	1.02E+00	94.47				9/2/2005 6:40	



1

UIISO

05-08094

Missouri Dept of Natural Resources

Run

Analysis Code

Eberline Services Work Order

Client

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-234	LCS	09/02/05 08:54		A_Spec	30	170.02	5.84 E+02	7.00 E-03	21
02	U-234	MBL	09/02/05 08:55		A_Spec	31	170.02	1.30 E+01	6.00 E-03	20.3
03	U-234	DUP	09/02/05 08:55		A_Spec	32	170.08	7.07 E+01	2.00 E-03	19.4
04	U-234	DO	09/02/05 09:45		A_Spec	33	170	6.67 E+01	2.00 E-03	21.3
05	U-234	TRG	09/02/05 09:45		A_Spec	34	170	7.20 E+01	0.00 E+00	20.2
06	U-234	TRG	09/02/05 09:45		A_Spec	35	170	6.35 E+01	3.00 E-03	20.5
07	U-234	TRG	09/02/05 09:46		A_Spec	36	170	6.58 E+01	1.00 E-03	20.9
08	U-234	TRG	09/02/05 09:46		A_Spec	37	170	7.28 E+01	1.00 E-03	21
09	U-234	TRG	09/02/05 09:46		A_Spec	38	170	7.68 E+01	1.00 E-03	20.1
10	U-234	TRG	09/02/05 09:46		A_Spec	39	170	6.68 E+01	1.00 E-03	20.5
11	U-234	TRG	09/02/05 09:47		A_Spec	40	170	7.57 E+01	2.00 E-03	20.9
12	U-234	TRG	09/02/05 09:47		A_Spec	41	170	9.20 E+01	0.00 E+00	21.1
13	U-234	TRG	09/02/05 09:47		A_Spec	42	170	9.20 E+01	0.00 E+00	21.7
14	U-234	TRG	09/02/05 09:48		A_Spec	43	170	6.00 E+01	0.00 E+00	21.7
15	U-234	TRG	09/02/05 09:48		A_Spec	44	170	4.97 E+01	2.00 E-03	21
16	U-234	TRG	09/02/05 09:48		A_Spec	45	170	6.78 E+01	1.00 E-03	20.5
17	U-234	TRG	09/02/05 09:49		A_Spec	46	170	7.37 E+01	2.00 E-03	20.8

		Client	Missouri Dept. of Natural Resources
Run	1	Analysis Code	UISO
		Eberline Services Work Order	05-08094

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-235	LCS	LCS	pCi/g	3.70E-01	1.68E-01	7.84E-02	3.62E-01	102.09	OK		OK	
02	U-235	MBL	BLANK	pCi/g	6.93E-02	7.00E-02	4.69E-02					OK	OK
03	U-235	DUP	VPSCR081705SL01	pCi/g	7.40E-02	7.51E-02	9.94E-02				INV	OK	
04	U-235	DO	VPSCR081705SL01	pCi/g	9.73E-02	8.07E-02	4.40E-02					OK	
05	U-235	TRG	VPSCR081705SL02	pCi/g	1.17E-01	9.00E-02	4.52E-02					OK	
06	U-235	TRG	VPSCR081705SL03	pCi/g	8.26E-02	8.07E-02	9.61E-02					OK	
07	U-235	TRG	VPSCR081705SL04	pCi/g	4.08E-02	4.75E-02	3.69E-02					OK	
08	U-235	TRG	VPSCR081705SL05	pCi/g	1.04E-01	8.61E-02	4.69E-02					OK	
09	U-235	TRG	VPSCR081705SL06	pCi/g	3.71E-02	5.26E-02	8.98E-02					OK	
10	U-235	TRG	VPSCR081705SL07	pCi/g	1.55E-02	3.80E-02	8.65E-02					OK	
11	U-235	TRG	VPSCR081705SL08	pCi/g	3.36E-02	4.77E-02	4.55E-02					OK	
12	U-235	TRG	VPSCR081705SL09	pCi/g	5.56E-02	5.62E-02	3.77E-02					OK	
13	U-235	TRG	VPSCR081705SL10	pCi/g	6.74E-02	6.81E-02	4.56E-02					OK	
14	U-235	TRG	VPSCR081705SL11	pCi/g	2.94E-02	4.59E-02	7.42E-02					OK	
15	U-235	TRG	VPSCR081705SL12	pCi/g	9.76E-02	1.04E-01	1.18E-01					OK	
16	U-235	TRG	VPSCR081705SL13	pCi/g	1.55E-02	3.10E-02	4.20E-02					OK	
17	U-235	TRG	VPSCR081705SL14	pCi/g	1.63E-01	1.06E-01	4.41E-02					OK	

Client		Missouri Dept. of Natural Resources									
Eberline Services Work Order		05-08094									
Analysis Code		UUIISO									
Run		1									
Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time	
01	U-235	LCS	08/22/05 00:00	1.00E+00	92.26				9/2/2005 6:40		
02	U-235	MBL	08/22/05 00:00	1.00E+00	93.12				9/2/2005 6:40		
03	U-235	DUP	08/17/05 10:02	1.01E+00	101.00				9/2/2005 6:40		
04	U-235	DO	08/17/05 10:02	1.06E+00	89.40				9/2/2005 6:40		
05	U-235	TRG	08/17/05 10:04	1.00E+00	96.79				9/2/2005 6:40		
06	U-235	TRG	08/17/05 10:08	1.03E+00	87.15				9/2/2005 6:40		
07	U-235	TRG	08/17/05 10:09	1.02E+00	112.97				9/2/2005 6:40		
08	U-235	TRG	08/17/05 10:11	1.05E+00	86.06				9/2/2005 6:40		
09	U-235	TRG	08/17/05 10:18	1.02E+00	107.13				9/2/2005 6:40		
10	U-235	TRG	08/17/05 10:20	1.07E+00	80.27				9/2/2005 6:40		
11	U-235	TRG	08/17/05 10:21	9.94E-01	93.92				9/2/2005 6:40		
12	U-235	TRG	08/17/05 10:23	1.16E+00	96.12				9/2/2005 6:40		
13	U-235	TRG	08/17/05 10:25	1.05E+00	85.31				9/2/2005 6:40		
14	U-235	TRG	08/17/05 10:27	1.10E+00	85.26				9/2/2005 6:40		
15	U-235	TRG	08/17/05 10:30	1.17E+00	52.44				9/2/2005 6:40		
16	U-235	TRG	08/17/05 10:32	1.02E+00	100.72				9/2/2005 6:40		
17	U-235	TRG	08/17/05 10:44	1.02E+00	94.47				9/2/2005 6:40		

Lab Fraction		Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01		U-235	LCS	09/02/05 08:54		A_Spec	30	170.02	2.18 E+01	1.00 E-03	21
02		U-235	MBL	09/02/05 08:55		A_Spec	31	170.02	4.00 E+00	0.00 E+00	20.3
03		U-235	DUP	09/02/05 08:55		A_Spec	32	170.08	4.49 E+00	3.00 E-03	19.4
04		U-235	DO	09/02/05 09:45		A_Spec	33	170	6.00 E+00	0.00 E+00	21.3
05		U-235	TRG	09/02/05 09:45		A_Spec	34	170	7.00 E+00	0.00 E+00	20.2
06		U-235	TRG	09/02/05 09:45		A_Spec	35	170	4.66 E+00	2.00 E-03	20.5
07		U-235	TRG	09/02/05 09:46		A_Spec	36	170	3.00 E+00	0.00 E+00	20.9
08		U-235	TRG	09/02/05 09:46		A_Spec	37	170	6.00 E+00	0.00 E+00	21
09		U-235	TRG	09/02/05 09:46		A_Spec	38	170	2.49 E+00	3.00 E-03	20.1
10		U-235	TRG	09/02/05 09:46		A_Spec	39	170	8.30 E-01	1.00 E-03	20.5
11		U-235	TRG	09/02/05 09:47		A_Spec	40	170	2.00 E+00	0.00 E+00	20.9
12		U-235	TRG	09/02/05 09:47		A_Spec	41	170	4.00 E+00	0.00 E+00	21.1
13		U-235	TRG	09/02/05 09:47		A_Spec	42	170	4.00 E+00	0.00 E+00	21.7
14		U-235	TRG	09/02/05 09:48		A_Spec	43	170	1.83 E+00	1.00 E-03	21.7
15		U-235	TRG	09/02/05 09:48		A_Spec	44	170	3.83 E+00	1.00 E-03	21
16		U-235	TRG	09/02/05 09:48		A_Spec	45	170	1.00 E+00	0.00 E+00	20.5
17		U-235	TRG	09/02/05 09:49		A_Spec	46	170	1.00 E+01	0.00 E+00	20.8

	1	Analysis Code	UISO	05-08094	Eberline Services Work Order	Missouri Dept. of Natural Resources	
						Client	



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UIISO

05-08094

Missouri Dept. of Natural Resources

Client

Analysis Code

Eberline Services Work Order

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-238	LCS	LCS	pCi/g	8.43E+00	1.41E+00	8.25E-02	7.78E+00	108.40	OK		OK	
02	U-238	MBL	BLANK	pCi/g	7.67E-02	6.99E-02	8.43E-02					OK	OK
03	U-238	DUP	VPSCR081705SL01	pCi/g	6.63E-01	2.12E-01	6.16E-02				INV	OK	
04	U-238	DO	VPSCR081705SL01	pCi/g	8.90E-01	2.53E-01	3.55E-02					OK	
05	U-238	TRG	VPSCR081705SL02	pCi/g	9.39E-01	2.64E-01	7.31E-02					OK	
06	U-238	TRG	VPSCR081705SL03	pCi/g	1.00E+00	2.82E-01	3.88E-02					OK	
07	U-238	TRG	VPSCR081705SL04	pCi/g	5.71E-01	1.78E-01	2.98E-02					OK	
08	U-238	TRG	VPSCR081705SL05	pCi/g	8.38E-01	2.50E-01	3.78E-02					OK	
09	U-238	TRG	VPSCR081705SL06	pCi/g	7.51E-01	2.19E-01	7.25E-02					OK	
10	U-238	TRG	VPSCR081705SL07	pCi/g	9.18E-01	2.74E-01	6.98E-02					OK	
11	U-238	TRG	VPSCR081705SL08	pCi/g	1.03E+00	2.80E-01	6.27E-02					OK	
12	U-238	TRG	VPSCR081705SL09	pCi/g	7.07E-01	2.06E-01	3.04E-02					OK	
13	U-238	TRG	VPSCR081705SL10	pCi/g	9.79E-01	2.72E-01	3.68E-02					OK	
14	U-238	TRG	VPSCR081705SL11	pCi/g	7.77E-01	2.31E-01	3.51E-02					OK	
15	U-238	TRG	VPSCR081705SL12	pCi/g	8.50E-01	3.04E-01	1.35E-01					OK	
16	U-238	TRG	VPSCR081705SL13	pCi/g	9.35E-01	2.55E-01	5.78E-02					OK	
17	U-238	TRG	VPSCR081705SL14	pCi/g	9.03E-01	2.55E-01	6.07E-02					OK	

Missouri Dept of Natural Resources		Client		Eberline Services Work Order		Analysis Code		1		
05-08094		UUISO		Run		1				
Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
01	U-238	LCS	08/22/05 00:00	1.00E+00	92.26				9/2/2005 6:40	
02	U-238	MBL	08/22/05 00:00	1.00E+00	93.12				9/2/2005 6:40	
03	U-238	DUP	08/17/05 10:02	1.01E+00	101.00				9/2/2005 6:40	
04	U-238	DO	08/17/05 10:02	1.06E+00	89.40				9/2/2005 6:40	
05	U-238	TRG	08/17/05 10:04	1.00E+00	96.79				9/2/2005 6:40	
06	U-238	TRG	08/17/05 10:08	1.03E+00	87.15				9/2/2005 6:40	
07	U-238	TRG	08/17/05 10:09	1.02E+00	112.97				9/2/2005 6:40	
08	U-238	TRG	08/17/05 10:11	1.05E+00	86.06				9/2/2005 6:40	
09	U-238	TRG	08/17/05 10:18	1.02E+00	107.13				9/2/2005 6:40	
10	U-238	TRG	08/17/05 10:20	1.07E+00	80.27				9/2/2005 6:40	
11	U-238	TRG	08/17/05 10:21	9.94E-01	93.92				9/2/2005 6:40	
12	U-238	TRG	08/17/05 10:23	1.16E+00	96.12				9/2/2005 6:40	
13	U-238	TRG	08/17/05 10:25	1.05E+00	85.31				9/2/2005 6:40	
14	U-238	TRG	08/17/05 10:27	1.10E+00	85.26				9/2/2005 6:40	
15	U-238	TRG	08/17/05 10:30	1.17E+00	52.44				9/2/2005 6:40	
16	U-238	TRG	08/17/05 10:32	1.02E+00	100.72				9/2/2005 6:40	
17	U-238	TRG	08/17/05 10:44	1.02E+00	94.47				9/2/2005 6:40	

Missouri Dept. of Natural Resources		Eberline Services Work Order		UISO		1	
Client		Analysis Code		Run			

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-238	LCS	09/02/05 08:54		A_Spec	30	170.02	6.17 E+02	3.00 E-03	21
02	U-238	MBL	09/02/05 08:55		A_Spec	31	170.02	5.49 E+00	3.00 E-03	20.3
03	U-238	DUP	09/02/05 08:55		A_Spec	32	170.08	4.98 E+01	1.00 E-03	19.4
04	U-238	DO	09/02/05 09:45		A_Spec	33	170	6.80 E+01	0.00 E+00	21.3
05	U-238	TRG	09/02/05 09:45		A_Spec	34	170	6.97 E+01	2.00 E-03	20.2
06	U-238	TRG	09/02/05 09:45		A_Spec	35	170	7.00 E+01	0.00 E+00	20.5
07	U-238	TRG	09/02/05 09:46		A_Spec	36	170	5.20 E+01	0.00 E+00	20.9
08	U-238	TRG	09/02/05 09:46		A_Spec	37	170	6.00 E+01	0.00 E+00	21
09	U-238	TRG	09/02/05 09:46		A_Spec	38	170	6.25 E+01	3.00 E-03	20.1
10	U-238	TRG	09/02/05 09:46		A_Spec	39	170	6.08 E+01	1.00 E-03	20.5
11	U-238	TRG	09/02/05 09:47		A_Spec	40	170	7.58 E+01	1.00 E-03	20.9
12	U-238	TRG	09/02/05 09:47		A_Spec	41	170	6.30 E+01	0.00 E+00	21.1
13	U-238	TRG	09/02/05 09:47		A_Spec	42	170	7.20 E+01	0.00 E+00	21.7
14	U-238	TRG	09/02/05 09:48		A_Spec	43	170	6.00 E+01	0.00 E+00	21.7
15	U-238	TRG	09/02/05 09:48		A_Spec	44	170	4.13 E+01	4.00 E-03	21
16	U-238	TRG	09/02/05 09:48		A_Spec	45	170	7.48 E+01	1.00 E-03	20.5
17	U-238	TRG	09/02/05 09:49		A_Spec	46	170	6.88 E+01	1.00 E-03	20.8

Client		Missouri Dept. of Natural Resources	
Eberline Services Work Order		05-08094	
Analysis Code		UISO	
Run		1	

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
02	U-236	MBL	BLANK	pCi/g	1.29E-02	3.16E-02	7.19E-02					OK	OK
03	U-236	DUP	VPSCR081705SL01	pCi/g	-2.52E-03	5.05E-03	6.85E-02				OK	OK	
04	U-236	DO	VPSCR081705SL01	pCi/g	0.00E+00	0.00E+00	3.95E-02					OK	
05	U-236	TRG	VPSCR081705SL02	pCi/g	3.00E-02	4.26E-02	4.06E-02					OK	
06	U-236	TRG	VPSCR081705SL03	pCi/g	1.59E-02	3.19E-02	4.32E-02					OK	
07	U-236	TRG	VPSCR081705SL04	pCi/g	1.22E-02	2.45E-02	3.31E-02					OK	
08	U-236	TRG	VPSCR081705SL05	pCi/g	-5.28E-03	7.51E-03	8.42E-02					OK	
09	U-236	TRG	VPSCR081705SL06	pCi/g	3.56E-02	4.70E-02	7.25E-02					OK	
10	U-236	TRG	VPSCR081705SL07	pCi/g	1.68E-02	3.37E-02	4.55E-02					OK	
11	U-236	TRG	VPSCR081705SL08	pCi/g	1.51E-02	3.02E-02	4.09E-02					OK	
12	U-236	TRG	VPSCR081705SL09	pCi/g	3.53E-02	4.38E-02	5.78E-02					OK	
13	U-236	TRG	VPSCR081705SL10	pCi/g	6.05E-02	6.11E-02	4.10E-02					OK	
14	U-236	TRG	VPSCR081705SL11	pCi/g	1.44E-02	2.89E-02	3.90E-02					OK	
15	U-236	TRG	VPSCR081705SL12	pCi/g	1.90E-02	4.65E-02	1.06E-01					OK	
16	U-236	TRG	VPSCR081705SL13	pCi/g	3.70E-02	4.89E-02	7.54E-02					OK	
17	U-236	TRG	VPSCR081705SL14	pCi/g	8.76E-02	7.26E-02	3.96E-02					OK	

		Client	Missouri Dept of Natural Resources
Run	1	05-08094	Eberline Services Work Order
		UUIISO	Analysis Code

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radionuclide % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
02	U-236	MBL	08/22/05 00:00	1.00E+00	93.12				9/2/2005 6:40	
03	U-236	DUP	08/17/05 10:02	1.01E+00	101.00				9/2/2005 6:40	
04	U-236	DO	08/17/05 10:02	1.06E+00	89.40				9/2/2005 6:40	
05	U-236	TRG	08/17/05 10:04	1.00E+00	96.79				9/2/2005 6:40	
06	U-236	TRG	08/17/05 10:08	1.03E+00	87.15				9/2/2005 6:40	
07	U-236	TRG	08/17/05 10:09	1.02E+00	112.97				9/2/2005 6:40	
08	U-236	TRG	08/17/05 10:11	1.05E+00	86.06				9/2/2005 6:40	
09	U-236	TRG	08/17/05 10:18	1.02E+00	107.13				9/2/2005 6:40	
10	U-236	TRG	08/17/05 10:20	1.07E+00	80.27				9/2/2005 6:40	
11	U-236	TRG	08/17/05 10:21	9.94E-01	93.92				9/2/2005 6:40	
12	U-236	TRG	08/17/05 10:23	1.16E+00	96.12				9/2/2005 6:40	
13	U-236	TRG	08/17/05 10:25	1.05E+00	85.31				9/2/2005 6:40	
14	U-236	TRG	08/17/05 10:27	1.10E+00	85.26				9/2/2005 6:40	
15	U-236	TRG	08/17/05 10:30	1.17E+00	52.44				9/2/2005 6:40	
16	U-236	TRG	08/17/05 10:32	1.02E+00	100.72				9/2/2005 6:40	
17	U-236	TRG	08/17/05 10:44	1.02E+00	94.47				9/2/2005 6:40	

Missouri Dept. of Natural Resources		Client		05-08094		UUISO		1			
Eberline Services Work Order		Analysis Code		Run							
Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff	
02	U-236	MBL	09/02/05 08:55		A_Spec	31	170.02	8.30 E-01	1.00 E-03	20.3	
03	U-236	DUP	09/02/05 08:55		A_Spec	32	170.08	-1.70 E-01	1.00 E-03	19.4	
04	U-236	DO	09/02/05 09:45		A_Spec	33	170	0.00 E+00	0.00 E+00	21.3	
05	U-236	TRG	09/02/05 09:45		A_Spec	34	170	2.00 E+00	0.00 E+00	20.2	
06	U-236	TRG	09/02/05 09:45		A_Spec	35	170	1.00 E+00	0.00 E+00	20.5	
07	U-236	TRG	09/02/05 09:46		A_Spec	36	170	1.00 E+00	0.00 E+00	20.9	
08	U-236	TRG	09/02/05 09:46		A_Spec	37	170	-3.40 E-01	2.00 E-03	21	
09	U-236	TRG	09/02/05 09:46		A_Spec	38	170	2.66 E+00	2.00 E-03	20.1	
10	U-236	TRG	09/02/05 09:46		A_Spec	39	170	1.00 E+00	0.00 E+00	20.5	
11	U-236	TRG	09/02/05 09:47		A_Spec	40	170	1.00 E+00	0.00 E+00	20.9	
12	U-236	TRG	09/02/05 09:47		A_Spec	41	170	2.83 E+00	1.00 E-03	21.1	
13	U-236	TRG	09/02/05 09:47		A_Spec	42	170	4.00 E+00	0.00 E+00	21.7	
14	U-236	TRG	09/02/05 09:48		A_Spec	43	170	1.00 E+00	0.00 E+00	21.7	
15	U-236	TRG	09/02/05 09:48		A_Spec	44	170	8.30 E-01	1.00 E-03	21	
16	U-236	TRG	09/02/05 09:48		A_Spec	45	170	2.66 E+00	2.00 E-03	20.5	
17	U-236	TRG	09/02/05 09:49		A_Spec	46	170	6.00 E+00	0.00 E+00	20.8	

Count Room Report
Client: Missouri Dept. of Natural

05-08094-UUISO-1 (pCi/g) in SO
Tracer ID: U-10a

Printed: 9/2/2005 6:40 AM
Page 1 of 1

30-32, 33-46

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	08/22/05 00:00	1.0000	0.6181	12.8293				
02	MBL	BLANK	08/22/05 00:00	1.0000	0.6094	12.6487				
03	DUP	VPSCR081705SL01	08/17/05 10:02	1.0128	0.6044	12.5449				
04	DO	VPSCR081705SL01	08/17/05 10:02	1.0602	0.5977	12.4059				
05	TRG	VPSCR081705SL02	08/17/05 10:04	1.0031	0.6066	12.5906				
06	TRG	VPSCR081705SL03	08/17/05 10:08	1.0334	0.6060	12.5781				
07	TRG	VPSCR081705SL04	08/17/05 10:09	1.0182	0.6024	12.5034				
08	TRG	VPSCR081705SL05	08/17/05 10:11	1.0459	0.5975	12.4017				
09	TRG	VPSCR081705SL06	08/17/05 10:18	1.0206	0.5913	12.2730				
10	TRG	VPSCR081705SL07	08/17/05 10:20	1.0670	0.6156	12.7774				
11	TRG	VPSCR081705SL08	08/17/05 10:21	0.9941	0.6087	12.6342				
12	TRG	VPSCR081705SL09	08/17/05 10:23	1.1611	0.6076	12.6113				
13	TRG	VPSCR081705SL10	08/17/05 10:25	1.0491	0.6026	12.5076				
14	TRG	VPSCR081705SL11	08/17/05 10:27	1.1018	0.6007	12.4681				
15	TRG	VPSCR081705SL12	08/17/05 10:30	1.1677	0.6046	12.5491				
16	TRG	VPSCR081705SL13	08/17/05 10:32	1.0222	0.6052	12.5615				
17	TRG	VPSCR081705SL14	08/17/05 10:44	1.0246	0.6064	12.5864				

Spike and Tracer Worksheet

Internal Work Order				Run	Analysis Code		Date		Technician		Technician Initials		Witness Initials			
05-08094				1	UUIISO		8/23/2005 11:50		JBARNARD							
LCS & Matrix Spikes																
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	LCS	MS	LCSD	Volume Used (g)	MSD	LCS	Error Estimate	Added pCi	MS	Error Estimate	Added pCi	MSD
U-234	U-8a	35.240	8/23/2005	0.500				0.5026		7.98	0.287	0.00	0.00	0.000	0.00	0.000
U-235	U-8a	1.600	8/23/2005	0.500				0.5026		0.36	0.013	0.00	0.00	0.000	0.00	0.000
U-238	U-8a	34.350	8/23/2005	0.500				0.5026		7.78	0.280	0.00	0.00	0.000	0.00	0.000

Tracers							Balance Printer Tapes	
fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition	Tracer	LCS
01	U-232	U-10a	20.756	8/23/2005	0.6181	0.5800	0.6181 g	0.5026 g
02	U-232	U-10a	20.756	8/23/2005	0.6094	0.5800	-0.6094 g	
03	U-232	U-10a	20.756	8/23/2005	0.6044	0.5800	-0.6044 g	
04	U-232	U-10a	20.756	8/23/2005	0.5977	0.5800	-0.5977 g	
05	U-232	U-10a	20.756	8/23/2005	0.6066	0.5800	-0.6066 g	
06	U-232	U-10a	20.756	8/23/2005	0.6060	0.5800	-0.6060 g	
07	U-232	U-10a	20.756	8/23/2005	0.6024	0.5800	-0.6024 g	
08	U-232	U-10a	20.756	8/23/2005	0.5975	0.5800	-0.5975 g	
09	U-232	U-10a	20.756	8/23/2005	0.5913	0.5800	-0.5913 g	
10	U-232	U-10a	20.756	8/23/2005	0.6156	0.5800	-0.6156 g	
11	U-232	U-10a	20.756	8/23/2005	0.6087	0.5800	-0.6087 g	
12	U-232	U-10a	20.756	8/23/2005	0.6076	0.5800	-0.6076 g	
13	U-232	U-10a	20.756	8/23/2005	0.6026	0.5800	-0.6026 g	
14	U-232	U-10a	20.756	8/23/2005	0.6007	0.5800	-0.6007 g	
15	U-232	U-10a	20.756	8/23/2005	0.6046	0.5800	-0.6046 g	
16	U-232	U-10a	20.756	8/23/2005	0.6052	0.5800	-0.6052 g	
17	U-232	U-10a	20.756	8/23/2005	0.6064	0.5800	-0.6064 g	
								Matrix Spike

Aliquot Worksheet

Work Order		Run	Analysis Code	Rpt Units	Lab Deadline	Technician
05-08094		1	UUISO	grams	9/9/2005	JBARNARD

Lab Fraction	Missouri Dept. of Natural Resources Client ID	Sample Type	Muffle Data		Dilution Data			Aliquot Data			MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of Dilis	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Water Added				
01	LCS	LCS					1.0000E+00	1.0000E+00	1.0000E+00					
02	BLANK	MBL					1.0000E+00	1.0000E+00	1.0000E+00					
03	VPSCR081705SL01	DUP					1.0128E+00	1.0128E+00	1.0128E+00				1.0128	3
04	VPSCR081705SL01	DO					1.0602E+00	1.0602E+00	1.0602E+00				1.0602	3
05	VPSCR081705SL02	TRG					1.0031E+00	1.0031E+00	1.0031E+00				1.0031	3
06	VPSCR081705SL03	TRG					1.0334E+00	1.0334E+00	1.0334E+00				1.0334	3
07	VPSCR081705SL04	TRG					1.0182E+00	1.0182E+00	1.0182E+00				1.0182	3
08	VPSCR081705SL05	TRG					1.0459E+00	1.0459E+00	1.0459E+00				1.0459	3
09	VPSCR081705SL06	TRG					1.0206E+00	1.0206E+00	1.0206E+00				1.0206	3
10	VPSCR081705SL07	TRG					1.0670E+00	1.0670E+00	1.0670E+00				1.0670	3
11	VPSCR081705SL08	TRG					9.9410E-01	9.9410E-01	9.9410E-01				9.9410	3
12	VPSCR081705SL09	TRG					1.1611E+00	1.1611E+00	1.1611E+00				1.1611	3
13	VPSCR081705SL10	TRG					1.0491E+00	1.0491E+00	1.0491E+00				1.0491	3
14	VPSCR081705SL11	TRG					1.1018E+00	1.1018E+00	1.1018E+00				1.1018	3
15	VPSCR081705SL12	TRG					1.1677E+00	1.1677E+00	1.1677E+00				1.1677	3
16	VPSCR081705SL13	TRG					1.0222E+00	1.0222E+00	1.0222E+00				1.0222	3
17	VPSCR081705SL14	TRG					1.0246E+00	1.0246E+00	1.0246E+00				1.0246	3

Comments

Technician: JBarnard Date: 8/23/05

Rough Sample Preparation Log Book

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
05-08094	9/9/2005	8/21/2005	8/22/2005	8/23/2005	KSALLINGS

Eberline Fraction	Missouri Dept. of Natural Resources Client ID	Tare (g)		Gross (g)		Net (g)		Percent		Gamma		Special Info
		Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Wet Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	
04	VPSCR081705SL01	14.0000	427.3600	359.7600	413.3600	345.7600	413.3600	16.35%	83.65%			
05	VPSCR081705SL02	13.8700	408.6400	338.6500	394.7700	324.7800	394.7700	17.73%	82.27%			
06	VPSCR081705SL03	13.7500	484.5800	425.7200	470.8300	411.9700	470.8300	12.50%	87.50%			
07	VPSCR081705SL04	13.9900	464.1600	401.9900	450.1700	388.0000	450.1700	13.81%	86.19%			
08	VPSCR081705SL05	13.9400	567.4800	495.5300	553.5400	481.5900	553.5400	13.00%	87.00%			
09	VPSCR081705SL06	13.9100	501.1000	396.9800	487.1900	383.0700	487.1900	21.37%	78.63%			
10	VPSCR081705SL07	14.0200	471.6000	374.1500	457.5800	360.1300	457.5800	21.30%	78.70%			
11	VPSCR081705SL08	14.0000	497.3700	396.4800	483.3700	382.4800	483.3700	20.87%	79.13%			
12	VPSCR081705SL09	13.9700	501.9700	413.2200	488.0000	399.2500	488.0000	18.19%	81.81%			
13	VPSCR081705SL10	14.0200	477.0700	345.6500	463.0500	331.6300	463.0500	28.38%	71.62%			
14	VPSCR081705SL11	13.9500	511.8900	427.7900	497.9400	413.8400	497.9400	16.89%	83.11%			
15	VPSCR081705SL12	13.8900	464.5200	384.1100	450.6300	370.2200	450.6300	17.84%	82.16%			
16	VPSCR081705SL13	13.8500	461.6300	353.8000	447.7800	339.9500	447.7800	24.08%	75.92%			
17	VPSCR081705SL14	13.9500	458.1300	364.2400	444.1800	350.2900	444.1800	21.14%	78.86%			

Comments	
Special Codes	H: Hot, O: Organic Hazard, P: PCB Hazard, R: Rush, T: Other (see comments)

Technician: *Kenny Salinas*

Eberline Services
Oak Ridge Laboratory


ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:48:50

Spectral File: ND_AMS_ARCHIVE_C:C_0508094A-UU\$01_UU.CNF

*
BATCH ID: 0508094A-UU * SAMPLE ID: 01
SAMPLE DATE: 2-SEP-2005 00:00 * ALIQUOT: 1.000E+00 gram
SAMPLE TITLE: SPIKE * DETECTOR NUMBER: 030
ACQ DATE: 2-SEP-2005 08:54 * AVERAGE EFFICIENCY: 20.95%
ELAPSED LIVE TIME: 10201. * RECOVERY: 92.26%
TRACER ID: UU-10A * TRACER FWHM (kev): 69.00
LAMBDA VALUE: 618. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.826 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 09:59 * EFF CAL DATE: 24-AUG-2005 09:59
BKG FILENAME: B_030_26AUG05 * BKG ELAPSED TIME: 60006.

NUCLIDE ACTIVITY SUMMARY

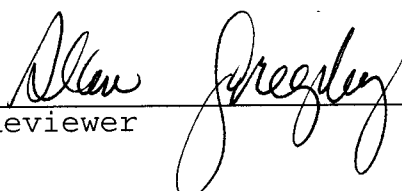
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	420.66	0.34	99.8	5.777E+00	7.413E-01	7.446E-02
U-234	4761.5	583.81	1.19	99.8	8.018E+00	1.346E+00	1.069E-01
U-235	4385.5	21.83	0.17	80.9	3.698E-01	1.679E-01	7.840E-02
U-236	4485.2	8.83	0.17	90.1	1.343E-01	9.350E-02	7.039E-02
U-238	4184.4	616.49	0.51	100.2	8.430E+00	1.405E+00	8.247E-02



Analyst

9.2.05

Date



Reviewer

9/2/05

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.C]C_0508094A-UU\$01-UU.CNF;1

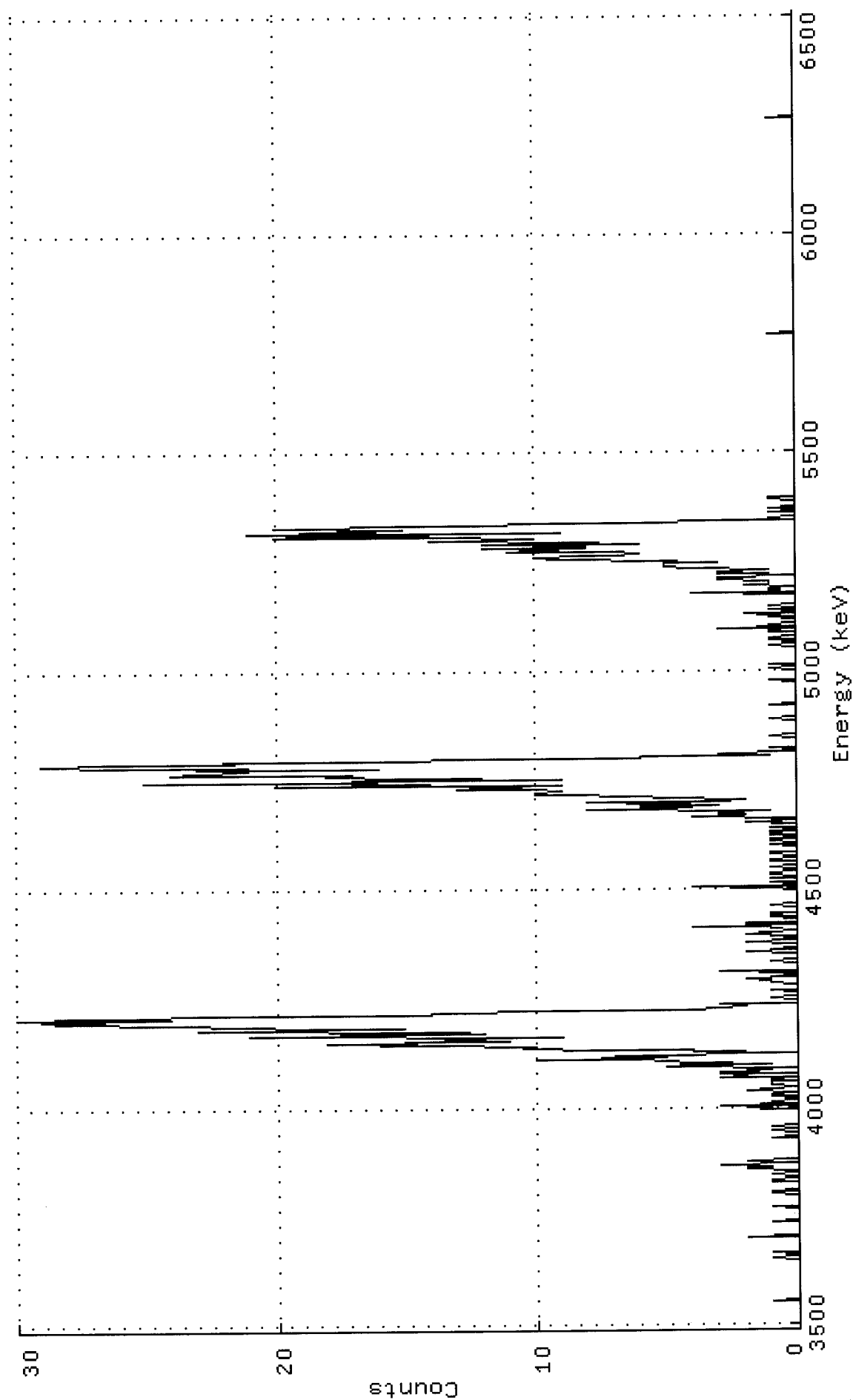
Title : 030

Sample Title: SPIKE

Start Time: 2-SEP-2005 08:54: Sample Time: 2-SEP-2005 00:00: Energy Offset: 3.47712E+03

Real Time : 0 02:50:01.00 Sample ID : 01 Energy Slope : 3.19065E+00

Live Time : 0 02:50:01.00 Sample Type: UU Energy Quad : -2.30193E-04



Channel Contents for ND_AMS_ARCHIVE_C:C_0508094A-UU\$01_UU

Channel

1:	10201	10201	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
57:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
85:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
99:	0	0	0	1	0	1	0	0	0	0	0	0	1	1	1	1
113:	0	0	0	1	0	0	0	2	1	1	3	0	0	0	2	2
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	1	2	0	3	0	0	0
169:	1	0	0	0	1	0	1	0	2	2	1	0	0	0	1	1
183:	1	1	0	1	0	3	2	3	0	3	1	2	0	0	5	5
197:	4	1	4	5	6	10	5	7	7	0	4	4	8	10	10	10
211:	11	10	14	18	11	15	12	12	9	21	14	12	13	23	23	23
225:	15	19	21	24	24	28	29	24	30	27	21	14	14	14	9	9
239:	4	3	2	3	0	0	0	0	1	0	0	0	0	0	1	1
253:	0	0	0	0	0	1	1	1	2	0	1	0	0	0	3	3
267:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
281:	2	0	1	0	0	0	0	2	0	0	0	1	0	0	2	2
295:	1	0	0	1	1	4	0	2	0	0	0	1	0	0	1	1
309:	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	1	4	0	0	1	0	0	0	0	1	1
337:	0	1	1	1	0	0	0	1	0	0	0	0	1	1	1	1
351:	0	0	0	1	1	0	0	0	0	0	1	0	0	0	1	1
365:	0	1	0	1	0	1	0	1	0	1	0	0	0	0	2	2
379:	1	0	2	0	4	2	3	3	1	1	8	4	6	3	3	3
393:	5	8	3	2	5	4	7	8	10	10	9	10	13	12	12	12
407:	9	20	14	18	25	9	15	15	18	17	24	23	21	23	23	23
421:	16	26	29	28	27	16	22	6	6	1	3	0	0	0	0	0
435:	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
463:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
491:	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
519:	1	0	0	0	0	1	1	0	3	0	1	1	0	0	0	0
533:	0	0	1	0	1	2	0	0	1	0	0	1	0	0	0	0
547:	0	0	0	0	0	0	0	4	0	1	1	1	0	0	2	2
561:	1	1	1	1	3	2	3	0	3	1	3	2	1	1	4	4
575:	5	5	5	5	3	6	8	9	10	8	7	6	7	11	11	11
589:	10	8	12	8	12	6	9	13	14	10	14	20	19	9	9	9
603:	21	17	15	15	20	14	13	9	0	1	1	0	0	0	0	0
617:	0	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0
631:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:48:46.58

Detector ID: 30	Acquisition Start: 2-SEP-2005 08:54:53.01
Live Time: 0 02:50:01.00	Real Time: 0 02:50:01.00
Batch Id: 0508094A-UU	Sample Id: 01
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4172.28	617	0	72.05	221.41	166	88	6.05E-02	4.0	
2	0	4376.38	22	0	111.12	287.82	263	42	2.16E-03	21.3	
3	0	4484.03	9	0	3.71	323.11	307	29	8.82E-04	33.3	
4	0	4754.16	585	0	63.68	412.52	361	81	5.73E-02	4.1	
5	0	5289.88	421	0	69.00	593.57	546	75	4.13E-02	4.9	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:48:48.73

Live Time: 0 16:40:06.00	Acquisition Start: 26-AUG-2005 12:01:25.01
	Real Time: 0 16:40:06.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.46	3	0	67.00	209.50	166	88	5.00E-05	57.7	
2	0	4363.17	1	0	0.00	283.50	263	42	1.67E-05	100.0	
3	0	4477.60	1	0	0.00	321.00	307	29	1.67E-05	100.0	
4	0	4719.56	7	0	3.19	401.00	361	81	1.17E-04	37.8	
5	0	5259.03	2	0	0.00	583.00	546	75	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:48:49.04

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4172.28*	616	0	72.05	221.41	166	88	6.04E-02	4.0	
2	0	4376.38*	22	0	111.12	287.82	263	42	2.14E-03	21.5	
3	0	4484.03*	9	0	3.71	323.11	307	29	8.66E-04	34.0	
4	0	4754.16*	584	0	63.68	412.52	361	81	5.72E-02	4.1	
5	0	5289.88*	421	0	69.00	593.57	546	75	4.12E-02	4.9	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : SPIKE
 Sample date : 2-SEP-2005 00:00:00 Acquisition date : 2-SEP-2005 08:54:53
 Sample ID : 01 Sample quantity : 1.0000 gram
 Sample type : UU Sample geometry :
 Detector name : 030 Detector geometry:
 Elapsed live time: 0 02:50:01.00 Elapsed real time: 0 02:50:01.00 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4172.28*	616	72.05	221.41	166	88	8.1		U-238	7.78
0	4376.38*	22111.12	287.82	263	42	43.0			U-235	0.341
0	4484.03*	9	3.71	323.11	307	29	68.1		U-236	0.124
0	4754.16*	584	63.68	412.52	361	81	8.3		U-234	7.40
0	5289.88*	421	69.00	593.57	546	75	9.8		U232	5.33

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:49:04

Spectral File: ND_AMS_ARCHIVE_R:R_0508094A-UU\$02_UU.CNF

BATCH ID: 0508094A-UU * SAMPLE ID: 02
SAMPLE DATE: 2-SEP-2005 00:00 * ALIQUOT: 1.000E+00 gram
SAMPLE TITLE: BLANK * DETECTOR NUMBER: 031
ACQ DATE: 2-SEP-2005 08:55 * AVERAGE EFFICIENCY: 20.31%
ELAPSED LIVE TIME: 10201. * RECOVERY: 93.12%
TRACER ID: UU-10A * TRACER FWHM (kev): 27.55
LAMBDA VALUE: 609. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.645 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 09:59 * EFF CAL DATE: 24-AUG-2005 09:59
BKG FILENAME: B_031_26AUG05 * BKG ELAPSED TIME: 60004.

NUCLIDE ACTIVITY SUMMARY

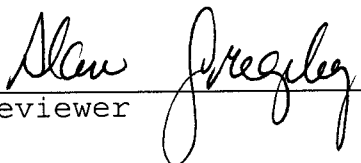
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	405.83	0.17	99.8	5.696E+00	7.388E-01	6.494E-02
U-234	4761.5	12.98	1.02	99.8	1.822E-01	1.090E-01	1.039E-01
U-235	4385.5	4.00	0.00	80.9	6.926E-02	7.000E-02	4.692E-02
U-236	4485.2	0.83	0.17	90.1	1.290E-02	3.160E-02	7.194E-02
U-238	4184.4	5.49	0.51	100.2	7.672E-02	6.988E-02	8.428E-02



Analyst

9.2.05

Date



Reviewer

9/2/05

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.R]R-0508094A-UU#02_UU.CNF;1

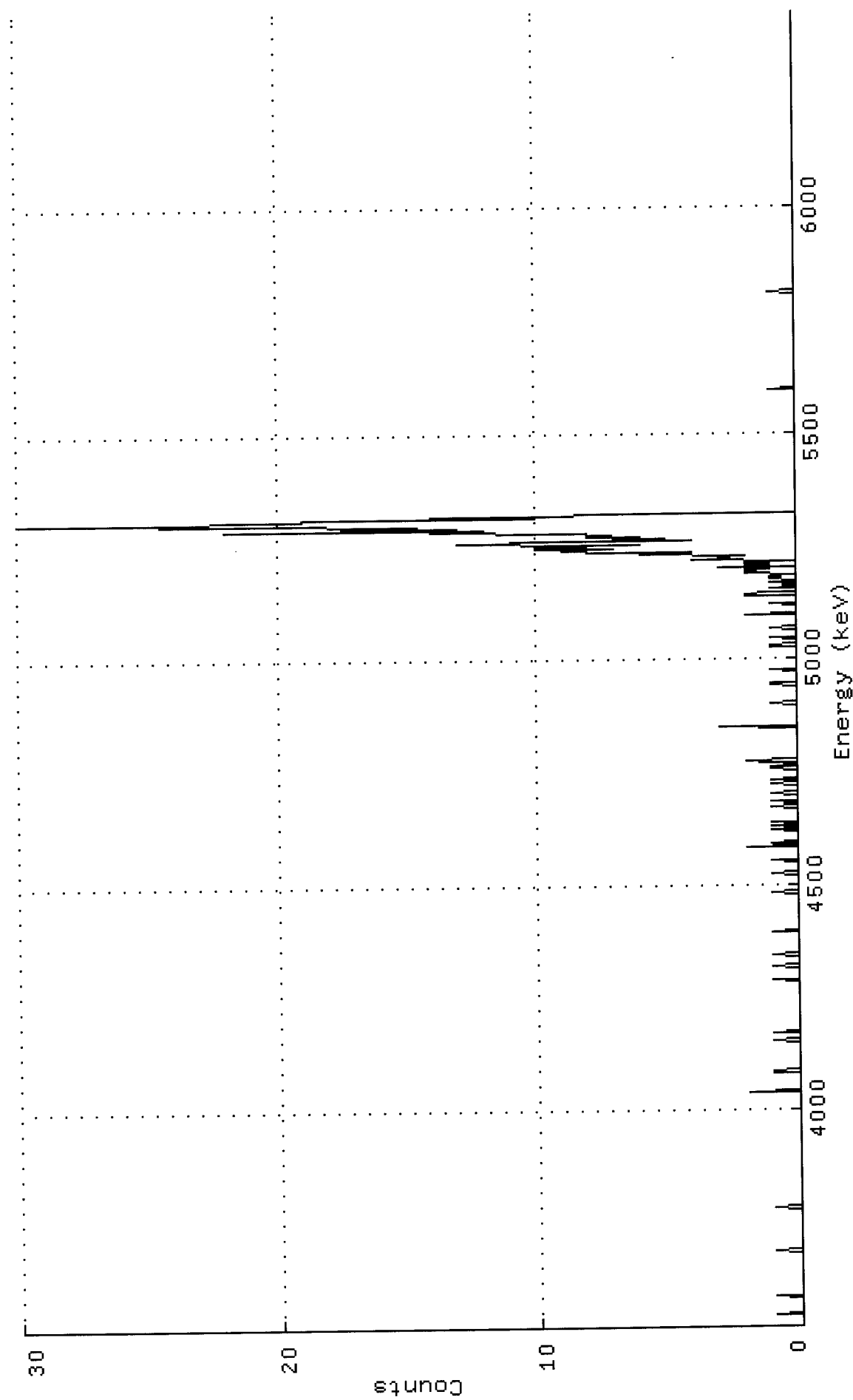
Title : 031

Sample Title: BLANK

Start Time: 2-SEP-2005 08:55: Sample Time: 2-SEP-2005 00:00: Energy Offset: 3.50727E+03

Real Time : 0 02:50:01.00 Sample ID : 02 Energy Slope : 3.02669E+00

Live Time : 0 02:50:01.00 Sample Type: UU Energy Quad : -1.71261E-04



Channel Contents for ND_AMS_ARCHIVE_R:R_0508094A-UU\$02_UU

Channel

1:	10201	10201	0	0	0	0	0	0	0	0	0	1	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
267:	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
351:	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0
365:	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1
379:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
393:	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0
407:	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0
421:	0	1	0	1	0	0	1	2	0	0	0	0	0	0	0
435:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
491:	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
533:	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
547:	0	0	0	1	0	0	0	0	0	0	2	2	0	1	0
561:	0	0	1	0	0	1	0	0	1	1	1	0	0	0	2
575:	2	2	1	3	0	2	1	2	0	4	3	3	3	2	2
589:	6	4	8	8	10	7	10	6	8	13	9	4	30	26	19
603:	6	8	8	9	14	12	22	13	16	17	19	0	0	0	0
617:	19	10	14	3	0	0	0	0	0	0	0	0	0	0	0
631:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:48:59.18

Detector ID: 31	Acquisition Start: 2-SEP-2005 08:55:05.01
Live Time: 0 02:50:01.00	Real Time: 0 02:50:01.00
Batch Id: 0508094A-UU	Sample Id: 02
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4095.40	6	0	3.03	196.50	164	93	5.88E-04	40.8	
2	0	4342.05	4	0	84.37	280.25	266	44	3.92E-04	50.0	
3	0	4481.60	1	0	3.03	328.00	312	30	9.80E-05	100.0	
4	0	4709.32	14	0	4.45	406.50	369	84	1.37E-03	26.7	
5	0	5276.04	406	0	27.55	605.11	561	78	3.98E-02	5.0	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:49:01.95

	Acquisition Start: 26-AUG-2005 12:01:27.01
Live Time: 0 16:40:04.00	Real Time: 0 16:40:04.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.32	3	0	211.87	210.00	164	93	5.00E-05	57.7	
2	0	4363.28	0	0	0.00	287.50	266	44	0.00E+00	0.0	
3	0	4477.22	1	0	3.03	326.50	312	30	1.67E-05	100.0	
4	0	4720.86	6	0	133.17	410.50	369	84	1.00E-04	40.8	
5	0	5260.21	1	0	0.00	599.50	561	78	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:49:02.26

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4095.40*	5	0	3.03	196.50	164	93	5.38E-04	44.9	
2	0	4342.05*	4	0	84.37	280.25	266	44	3.92E-04	50.0	
3	0	4481.60*	1	0	3.03	328.00	312	30	8.14E-05	122.2	
4	0	4709.32*	13	0	4.45	406.50	369	84	1.27E-03	29.0	
5	0	5276.04*	406	0	27.55	605.11	561	78	3.98E-02	5.0	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : BLANK
Sample date       : 2-SEP-2005 00:00:00   Acquisition date : 2-SEP-2005 08:55:05
Sample ID        : 02                     Sample quantity  : 1.0000 gram
Sample type      : UU                     Sample geometry   :
Detector name    : 031                     Detector geometry:
Elapsed live time: 0 02:50:01.00           Elapsed real time: 0 02:50:01.00   0.0%
Energy tolerance : 100.00 keV              Half life ratio  : 8.00
Errors propagated: Yes                     Systematic Error : 3.00 %
Efficiency type  : Average value           Efficiencies at  : Peak Energy
Abundance limit  : 75.00

```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4095.40*	5	3.03	196.50	164	93	89.9		U-238	7.145E-02
0	4342.05*	4	84.37	280.25	266	44	100.0		U-235	6.449E-02
0	4481.60*	1	3.03	328.00	312	30	244.4		U-236	1.202E-02
0	4709.32*	13	4.45	406.50	369	84	58.0		U-234	0.170
0	5276.04*	406	27.55	605.11	561	78	9.9		U232	5.30

Eberline Services
Oak Ridge Laboratory

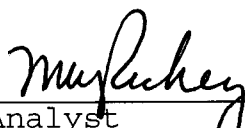
ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:49:13

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$03_UU.CNF

*
BATCH ID: 0508094A-UU * SAMPLE ID: 03
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.013E+00 gram
SAMPLE TITLE: VPSCR081705SL01 * DETECTOR NUMBER: 032
ACQ DATE: 2-SEP-2005 08:55 * AVERAGE EFFICIENCY: 19.42%
ELAPSED LIVE TIME: 10205. * RECOVERY: 101.00%
TRACER ID: UU-10A * TRACER FWHM (kev): 72.94
LAMBDA VALUE: 604. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.547 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 09:59 * EFF CAL DATE: 24-AUG-2005 09:59
BKG FILENAME: B_032_26AUG05 * BKG ELAPSED TIME: 60001.

NUCLIDE ACTIVITY SUMMARY

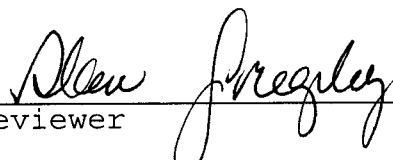
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	417.49	0.51	99.8	5.580E+00	7.183E-01	8.058E-02
U-234	4761.5	70.66	0.34	99.8	9.440E-01	2.643E-01	7.244E-02
U-235	4385.5	4.49	0.51	80.9	7.400E-02	7.513E-02	9.941E-02
U-236	4485.2	-0.17	0.17	90.1	-2.517E-03	5.047E-03	6.848E-02
U-238	4184.4	49.83	0.17	100.2	6.629E-01	2.117E-01	6.156E-02



Analyst

9.2.05

Date



Reviewer

9/2/05

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-UU\$03_UU.CNF;1

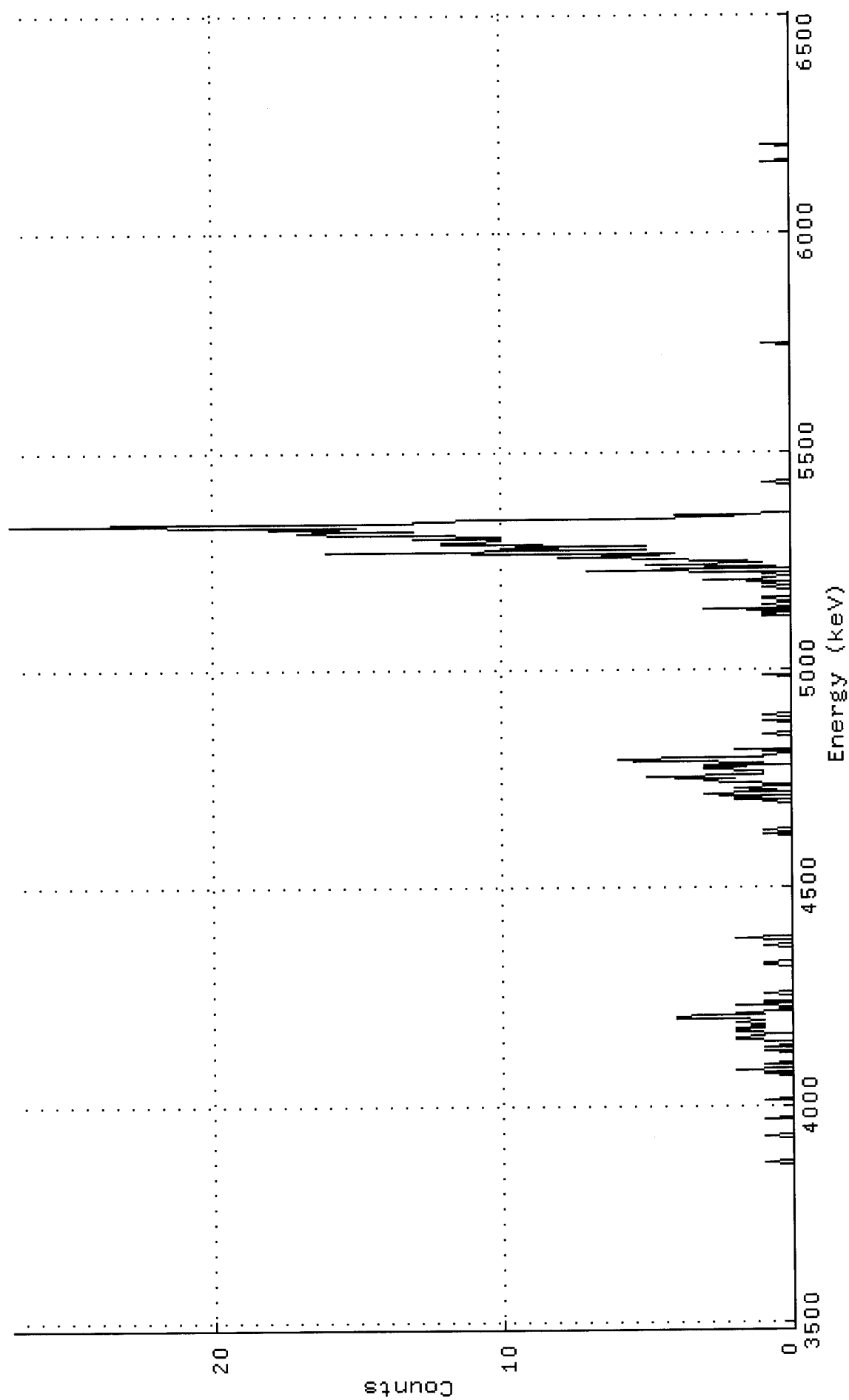
Title : 032

Sample Title: VPSCR081705SL01

Start Time: 2-SEP-2005 08:55: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.47349E+03

Real Time : 0 02:50:05.00 Sample ID : 03 Energy Slope : 3.14876E+00

Live Time : 0 02:50:05.00 Sample Type: UU Energy Quad : -1.88450E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$03_UU

Channel

1:	10205	10205	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0
197:	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
211:	0	0	1	0	0	0	0	2	2	2	4	4	3	1	2	2
225:	2	1	2	1	1	2	0	1	0	0	0	0	0	0	1	1
239:	0	1	0	0	1	2	0	1	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
295:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
379:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
393:	0	0	0	0	0	1	0	2	2	0	2	3	1	1	0	0
407:	1	2	0	1	0	2	2	3	2	3	5	1	1	1	1	1
421:	1	1	3	3	0	3	1	4	5	6	3	1	1	1	0	0
435:	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
449:	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
463:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	0	0	1	1	0	1	0	0	3	0
547:	0	0	1	1	0	0	0	1	1	0	0	0	0	1	1	1
561:	0	0	1	0	0	1	0	3	1	1	0	0	0	0	0	0
575:	0	7	2	0	1	5	4	1	2	2	5	6	8	5	5	5
589:	4	6	16	5	6	10	9	5	12	12	11	10	10	13	10	13
603:	10	13	15	17	16	13	18	15	16	27	20	13	13	10	10	10
617:	6	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0
631:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:49:09.82

Detector ID: 32	Acquisition Start: 2-SEP-2005 08:55:26.01
Live Time: 0 02:50:05.00	Real Time: 0 02:50:05.00
Batch Id: 0508094A-UU	Sample Id: 03
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4177.01	50	0	10.63	226.50	169	89	4.90E-03	14.1	
2	0	4355.58	5	0	3.15	285.00	267	42	4.90E-04	44.7	
3	0	4476.93	0	0	0.00	325.00	311	29	0.00E+00	0.0	
4	0	4756.62	71	0	47.07	417.96	366	81	6.96E-03	11.9	
5	0	5299.50	418	0	72.94	601.57	551	75	4.10E-02	4.9	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:49:11.33

Live Time: 0 16:40:01.00	Acquisition Start: 26-AUG-2005 12:01:30.01
	Real Time: 0 16:40:01.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.62	1	0	3.15	213.00	169	89	1.67E-05	100.0	
2	0	4363.18	3	0	40.93	287.50	267	42	5.00E-05	57.7	
3	0	4476.93	1	0	3.15	325.00	311	29	1.67E-05	100.0	
4	0	4720.82	2	0	9.45	406.00	366	81	3.33E-05	70.7	
5	0	5259.80	3	0	107.06	588.00	551	75	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:49:11.65

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4177.01*	50	0	10.63	226.50	169	89	4.88E-03	14.2	
2	0	4355.58*	4	0	3.15	285.00	267	42	4.40E-04	50.2	
3	0	4476.93*	0	0	0.00	325.00	311	29	1.67E-05	100.0	
4	0	4756.62*	71	0	47.07	417.96	366	81	6.92E-03	11.9	
5	0	5299.50*	417	0	72.94	601.57	551	75	4.09E-02	4.9	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL01
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:55:26
 Sample ID : 03 Sample quantity : 1.0128 gram
 Sample type : UU Sample geometry :
 Detector name : 032 Detector geometry:
 Elapsed live time: 0 02:50:05.00 Elapsed real time: 0 02:50:05.00 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4177.01*	50	10.63	226.50	169	89	28.4		U-238	0.670
0	4355.58*	4	3.15	285.00	267	421	00.5		U-235	7.474E-02
0	4476.93*	0	0.00	325.00	311	292	00.0		U-236	-2.542E-03
0	4756.62*	71	47.07	417.96	366	81	23.9		U-234	0.953
0	5299.50*	417	72.94	601.57	551	75	9.8		U232	5.64

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Oak Ridge Laboratory


ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:49:21

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$04_UU.CNF

BATCH ID:	0508094A-UU	*	SAMPLE ID:	04
SAMPLE DATE:	17-AUG-2005 00:00	*	ALIQOT:	1.060E+00 gram
SAMPLE TITLE:	VPSCR081705SL01	*	DETECTOR NUMBER:	033
ACQ DATE:	2-SEP-2005 09:45	*	AVERAGE EFFICIENCY:	21.31%
ELAPSED LIVE TIME:	10200.	*	RECOVERY:	89.40%
TRACER ID:	UU-10A	*	TRACER FWHM (kev):	65.19
LAMBDA VALUE:	598.	*	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.408	*	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	*	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	*	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_033_26AUG05	*	BKG ELAPSED TIME:	60000.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	400.83	0.17	99.8	5.272E+00	6.859E-01	6.083E-02
U-234	4761.5	66.66	0.34	99.8	8.763E-01	2.511E-01	7.127E-02
U-235	4385.5	6.00	0.00	80.9	9.730E-02	8.073E-02	4.395E-02
U-236	4485.2	0.00	0.00	90.1	0.000E+00	0.000E+00	3.946E-02
U-238	4184.4	68.00	0.00	100.2	8.901E-01	2.527E-01	3.547E-02



Analyst

9.2.05

Date



Reviewer

9/2/05

Date

Spectrum : DKA100: [ALPHA.ALUSR.ARCHIVE.S]S_0508094A-UU\$04_UU.CNF; 1

Title : 033

Sample Title: VPSCR081705SL01

Start Time: 2-SEP-2005 09:45:

Real Time : 0 02:50:00.30

Live Time : 0 02:50:00.00

Sample Time: 17-AUG-2005 00:00

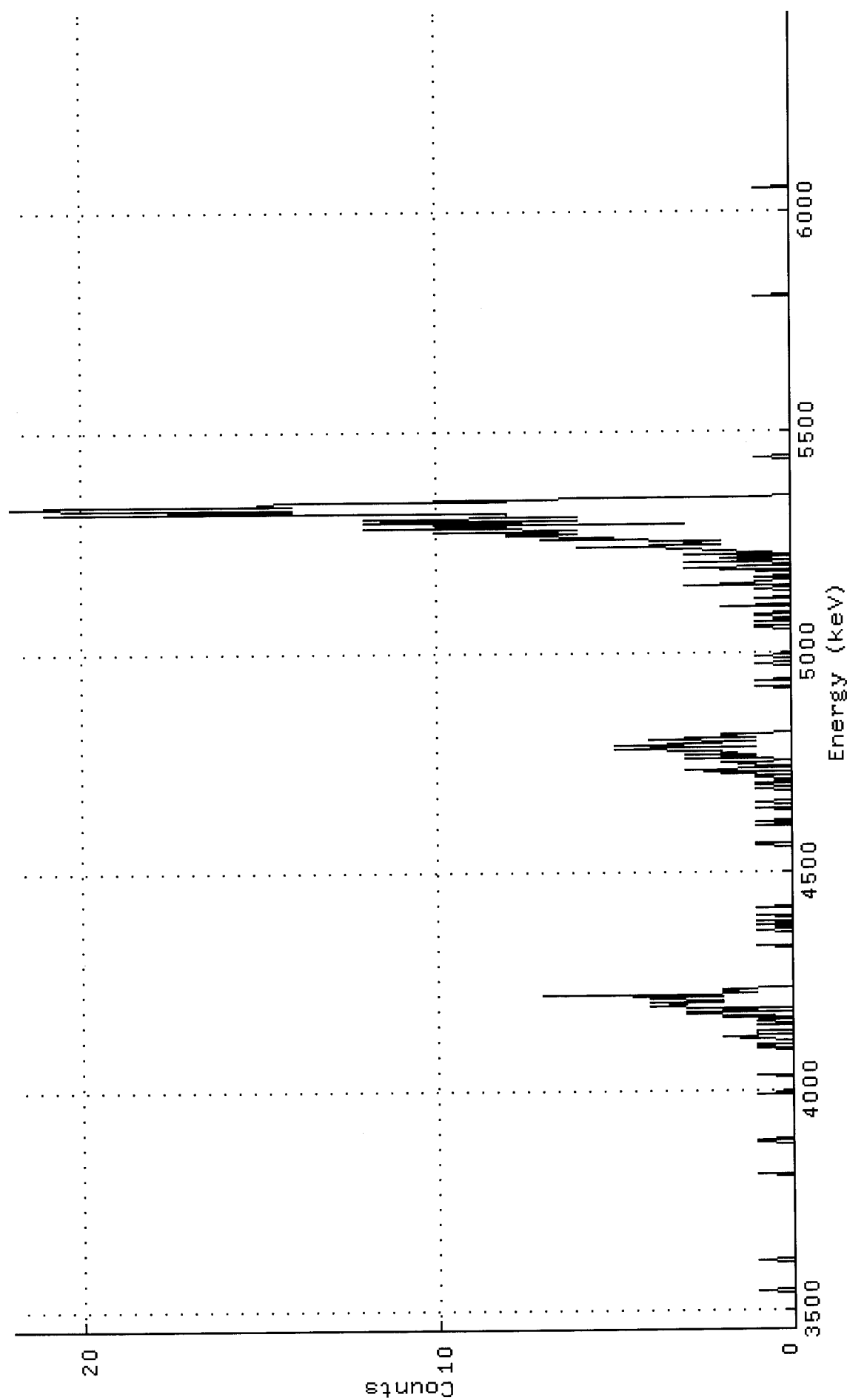
Sample ID : 04

Sample Type: UU

Energy Offset: 3.44527E+03

Energy Slope : 3.13024E+00

Energy Quad : -1.93467E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$04_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
197:	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1	0
211:	0	1	1	0	0	0	1	1	0	2	0	1	3	3	3	0
225:	0	0	0	1	0	1	4	2	2	4	0	2	7	3	1	0
239:	2	0	2	4	3	4	0	0	0	0	4	0	0	0	0	0
253:	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0
309:	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
379:	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
393:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
407:	0	0	1	1	1	0	0	0	0	1	1	0	2	0	0	2
421:	3	0	0	1	1	2	1	0	0	1	3	1	3	1	2	2
435:	2	2	5	3	1	5	2	2	1	1	4	2	0	0	0	0
449:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
477:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
519:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
533:	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	1
547:	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0
561:	1	0	0	3	1	1	1	0	0	0	2	1	0	0	3	0
575:	2	0	3	0	0	0	1	3	0	2	1	0	0	0	5	8
589:	1	2	2	3	4	6	2	3	3	2	6	7	6	11	12	8
603:	8	6	10	7	6	9	12	8	10	20	12	15	14	14	8	0
617:	6	8	8	8	21	14	14	19	22	20	14	15	14	14	0	0
631:	10	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:49:17.94

Detector ID: 33	Acquisition Start: 2-SEP-2005 09:45:09.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.30
Batch Id: 0508094A-UU	Sample Id: 04
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4184.09	68	0	28.55	239.57	179	90	6.67E-03	12.1	
2	0	4377.98	6	0	97.04	303.67	278	42	5.88E-04	40.8	
3	0	4478.19	0	0	0.00	337.00	323	29	0.00E+00	0.0	
4	0	4757.67	67	0	75.85	430.73	378	82	6.57E-03	12.2	
5	0	5293.82	401	0	65.19	613.84	564	77	3.93E-02	5.0	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:49:19.41

Live Time: 0 16:40:00.00	Acquisition Start: 26-AUG-2005 12:01:33.01
	Real Time: 0 16:40:00.20

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.21	0	0	0.00	223.50	179	90	0.00E+00	0.0	
2	0	4362.41	0	0	0.00	298.50	278	42	0.00E+00	0.0	
3	0	4478.19	0	0	0.00	337.00	323	29	0.00E+00	0.0	
4	0	4721.39	2	0	112.69	418.50	378	82	3.33E-05	70.7	
5	0	5259.56	1	0	3.13	602.00	564	77	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:49:19.72

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4184.09*	68	0	28.55	239.57	179	90	6.67E-03	12.1	
2	0	4377.98*	6	0	97.04	303.67	278	42	5.88E-04	40.8	
3	0	4478.19*	0	0	0.00	337.00	323	29	0.00E+00	0.0	
4	0	4757.67*	67	0	75.85	430.73	378	82	6.54E-03	12.3	
5	0	5293.82*	401	0	65.19	613.84	564	77	3.93E-02	5.0	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL01
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:45:09
 Sample ID : 04 Sample quantity : 1.0602 gram
 Sample type : UU Sample geometry :
 Detector name : 033 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.30 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4184.09*	68	28.55	239.57	179	90	24.3		U-238	0.796
0	4377.98*	6	97.04	303.67	278	42	81.6		U-235	8.699E-02
0	4478.19*	0	0.00	337.00	323	29	0.0		U-236	0.000E+00
0	4757.67*	67	75.85	430.73	378	82	24.6		U-234	0.783
0	5293.82*	401	65.19	613.84	564	77	10.0		U232	4.71

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:49:31

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$05_UU.CNF

*
BATCH ID: 0508094A-UU * SAMPLE ID: 05
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.003E+00 gram
SAMPLE TITLE: VPSCR081705SL02 * DETECTOR NUMBER: 034
ACQ DATE: 2-SEP-2005 09:45 * AVERAGE EFFICIENCY: 20.21%
ELAPSED LIVE TIME: 10200. * RECOVERY: 96.79%
TRACER ID: UU-10A * TRACER FWHM (kev): 80.12
LAMBDA VALUE: 607. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.592 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_034_26AUG05 * BKG ELAPSED TIME: 60000.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	417.66	0.34	99.8	5.655E+00	7.273E-01	7.337E-02
U-234	4761.5	72.00	0.00	99.8	9.744E-01	2.703E-01	3.667E-02
U-235	4385.5	7.00	0.00	80.9	1.169E-01	8.998E-02	4.524E-02
U-236	4485.2	2.00	0.00	90.1	2.998E-02	4.262E-02	4.062E-02
U-238	4184.4	69.66	0.34	100.2	9.387E-01	2.641E-01	7.305E-02

*** Tracer FWHM > 80.0 Kev ***

Murphy
Analyst

9.2.05
Date

Alan Murphy
Reviewer

9/2/05
Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-UU\$05_UU.CNF;1

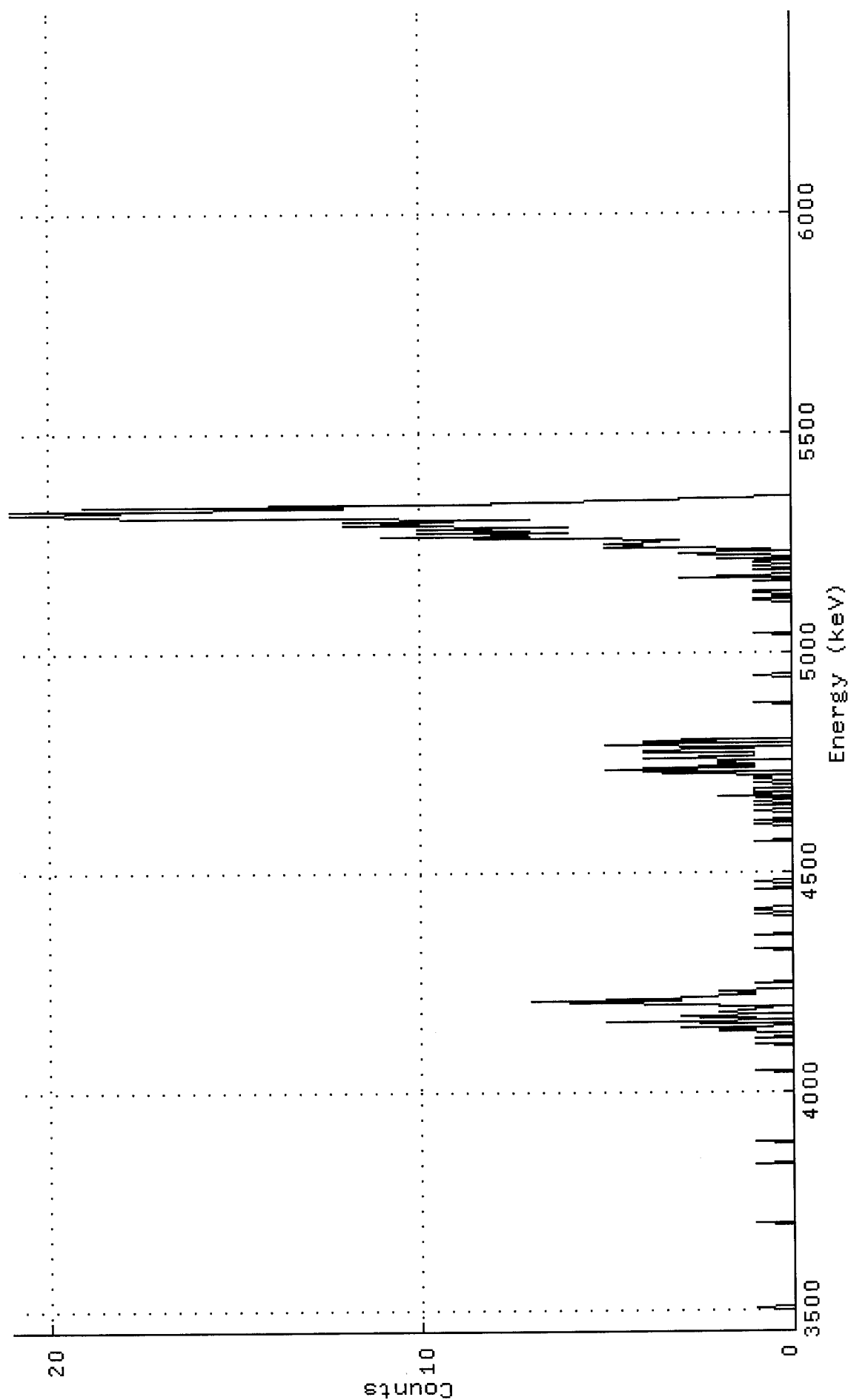
Title : 034

Sample Title: VPSCR081705SL02

Start Time: 2-SEP-2005 09:45: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44466E+03

Real Time : 0 02:50:00.30 Sample ID : 05 Energy Slope : 3.08962E+00

Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.48111E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$05_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	1	0	0	0	0	0	1	0	0
225:	0	0	2	1	1	3	1	0	0	5	3	0	2	2
239:	3	0	1	2	1	1	1	0	4	2	6	3	7	3
253:	3	3	1	1	2	2	0	0	0	0	0	1	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
295:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	1	1	0	1	1	1	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
379:	0	0	0	0	0	1	0	0	1	0	0	0	0	0
393:	0	1	0	0	0	0	1	0	1	0	0	0	2	0
407:	1	0	1	1	1	0	0	0	0	1	0	0	1	1
421:	1	0	3	4	0	5	1	4	1	1	2	2	1	0
435:	4	1	1	1	1	4	4	2	0	1	5	3	0	4
449:	2	0	0	0	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
561:	0	1	1	0	0	0	0	0	0	0	1	0	0	3
575:	1	0	0	0	0	1	0	1	1	0	1	1	0	2
589:	0	0	1	2	3	1	0	1	3	5	4	5	4	4
603:	3	3	6	11	7	8	6	10	7	9	10	6	12	11
617:	10	12	11	7	14	17	19	20	21	18	21	19	12	12
631:	19	9	7	8	3	3	2	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:49:26.42

Detector ID: 34	Acquisition Start: 2-SEP-2005 09:45:29.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.30
Batch Id: 0508094A-UU	Sample Id: 05
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4187.73	70	0	56.15	243.34	181	91	6.86E-03	12.0	
2	0	4391.21	7	0	98.87	311.00	281	42	6.86E-04	37.8	
3	0	4470.54	2	0	18.54	337.50	326	29	1.96E-04	70.7	
4	0	4744.78	72	0	80.05	429.65	381	82	7.06E-03	11.8	
5	0	5298.14	418	0	80.12	618.23	567	76	4.10E-02	4.9	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:49:28.70

	Acquisition Start: 26-AUG-2005 12:01:36.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.35	2	0	188.47	226.00	181	91	3.33E-05	70.7	
2	0	4362.72	0	0	0.00	301.50	281	42	0.00E+00	0.0	
3	0	4478.01	0	0	0.00	340.00	326	29	0.00E+00	0.0	
4	0	4720.62	0	0	0.00	421.50	381	82	0.00E+00	0.0	
5	0	5258.21	2	0	157.57	604.50	567	76	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:49:29.02

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4187.73*	70	0	56.15	243.34	181	91	6.83E-03	12.0	
2	0	4391.21*	7	0	98.87	311.00	281	42	6.86E-04	37.8	
3	0	4470.54*	2	0	18.54	337.50	326	29	1.96E-04	70.7	
4	0	4744.78*	72	0	80.05	429.65	381	82	7.06E-03	11.8	
5	0	5298.14*	418	0	80.12	618.23	567	76	4.09E-02	4.9	

Flag: "*" = Peak area was modified by background subtraction


```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL02
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:45:29
Sample ID         : 05 Sample quantity : 1.0031 gram
Sample type       : UU Sample geometry :
Detector name     : 034 Detector geometry:
Elapsed live time : 0 02:50:00.00 Elapsed real time: 0 02:50:00.30 0.0%
Energy tolerance  : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type   : Average value Efficiencies at : Peak Energy
Abundance limit   : 75.00
    
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4187.73*	70	56.15	243.34	181	91	24.0		U-238	0.908
0	4391.21*	7	98.87	311.00	281	42	75.6		U-235	0.113
0	4470.54*	2	18.54	337.50	326	291	41.4		U-236	2.902E-02
0	4744.78*	72	80.05	429.65	381	82	23.6		U-234	0.943
0	5298.14*	418	80.12	618.23	567	76	9.8		U232	5.47

Eberline Services
Oak Ridge Laboratory

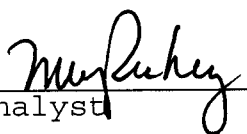
ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:49:40

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$06_UU.CNF

*
BATCH ID: 0508094A-UU * SAMPLE ID: 06
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.033E+00 gram
SAMPLE TITLE: VPSCR081705SL03 * DETECTOR NUMBER: 035
ACQ DATE: 2-SEP-2005 09:45 * AVERAGE EFFICIENCY: 20.51%
ELAPSED LIVE TIME: 10200. * RECOVERY: 87.15%
TRACER ID: UU-10A * TRACER FWHM (kev): 66.53
LAMBDA VALUE: 606. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.580 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_035_26AUG05 * BKG ELAPSED TIME: 60000.

NUCLIDE ACTIVITY SUMMARY

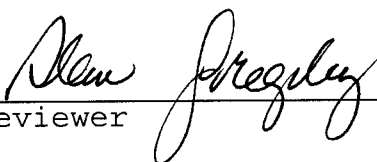
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	381.32	0.68	99.8	5.483E+00	7.246E-01	9.407E-02
U-234	4761.5	63.49	0.51	99.8	9.126E-01	2.675E-01	8.669E-02
U-235	4385.5	4.66	0.34	80.9	8.263E-02	8.071E-02	9.613E-02
U-236	4485.2	1.00	0.00	90.1	1.592E-02	3.193E-02	4.315E-02
U-238	4184.4	70.00	0.00	100.2	1.002E+00	2.824E-01	3.879E-02



Analyst

9.2.05

Date



Reviewer

9/2/05

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-UU\$06_UU.CNF;1

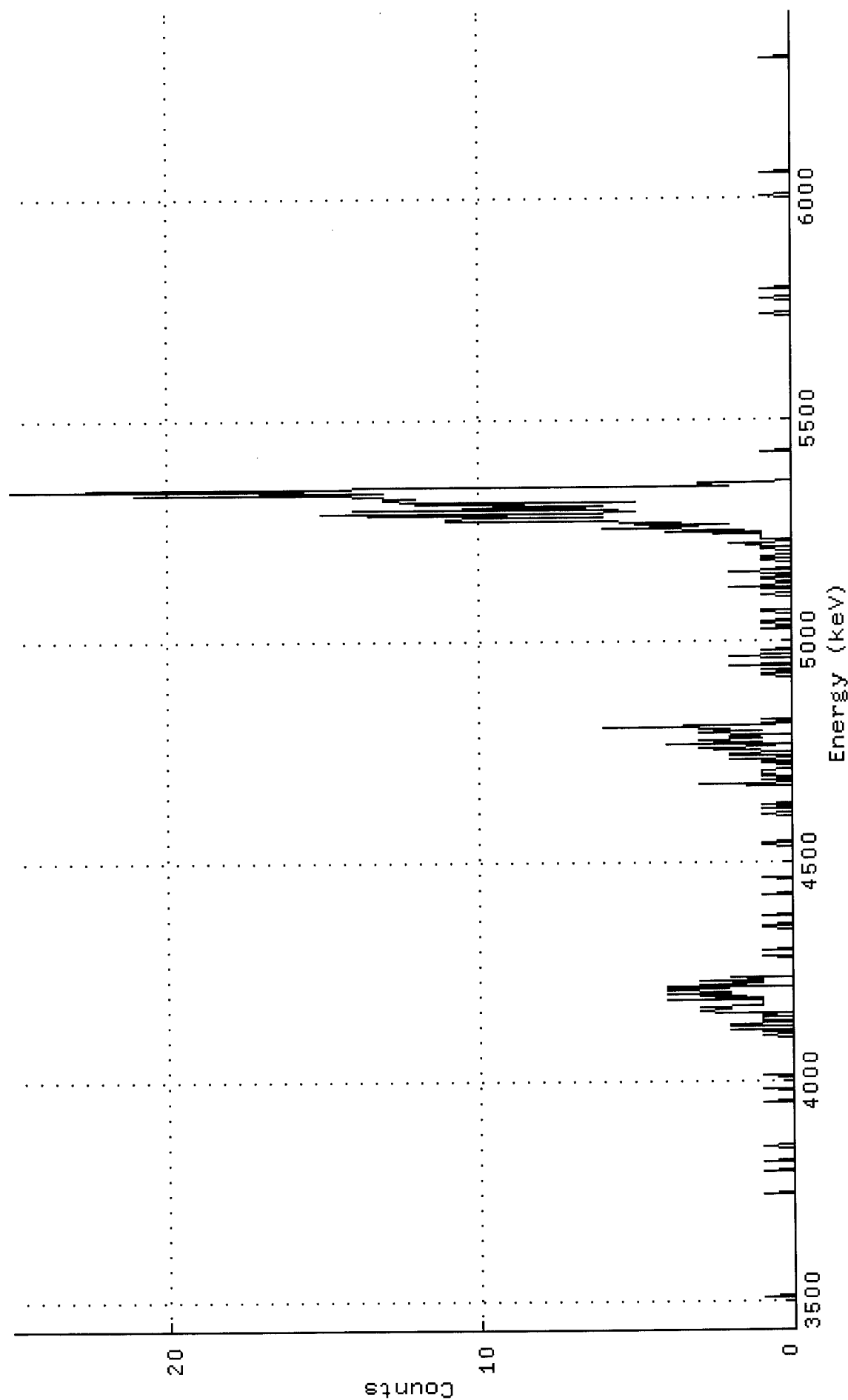
Title : 035

Sample Title: VPSCR081705SL03

Start Time: 2-SEP-2005 09:45: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42698E+03

Real Time : 0 02:50:00.30 Sample ID : 06 Energy Slope : 3.10189E+00

Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.80495E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$06_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
127:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	1	0	0	0	0	0	0	0	0	1	0
183:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
225:	2	0	0	0	2	2	0	0	1	1	1	0	1	0
239:	2	3	2	2	3	1	1	1	1	1	4	1	2	4
253:	2	2	4	4	4	0	4	2	1	3	1	1	2	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	1	0	0	0	0	1	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	1	0	1	0	0	0
309:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
337:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	1	0	1	0	0	0	0	0	0	0	0	0	0	0
379:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
393:	1	0	0	1	0	0	0	0	0	0	0	0	0	0
407:	0	0	0	0	3	1	0	1	0	0	1	0	1	1
421:	1	1	0	0	0	0	1	0	0	2	1	0	0	2
435:	2	0	0	2	3	2	1	0	4	1	3	1	2	2
449:	0	1	3	2	1	3	3	6	1	0	1	0	1	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	1	0	1	0	1	0	0	0	2	0
505:	0	0	0	0	0	2	0	0	0	0	1	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
533:	0	0	1	0	1	0	0	0	0	0	0	1	1	0
547:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
561:	0	0	2	0	1	0	0	0	1	0	1	0	0	0
575:	2	0	1	0	0	0	0	0	0	1	0	1	1	0
589:	0	0	0	0	1	0	1	1	2	1	0	0	1	1
603:	1	1	1	4	1	2	5	6	3	5	2	5	6	11
617:	11	10	6	12	15	7	5	6	14	7	6	7	12	5
631:	12	13	12	13	13	15	21	13	18	25	20	8	2	3
645:	3	1	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
785:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
799:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:49:34.97

Detector ID: 35	Acquisition Start: 2-SEP-2005 09:45:46.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.30
Batch Id: 0508094A-UU	Sample Id: 06
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4184.46	70	0	72.89	247.77	187	90	6.86E-03	12.0	
2	0	4361.65	5	0	0.00	306.80	286	43	4.90E-04	44.7	
3	0	4460.76	1	0	3.10	340.00	331	30	9.80E-05	100.0	
4	0	4753.74	64	0	42.92	438.94	387	82	6.27E-03	12.5	
5	0	5302.07	382	0	66.53	627.40	575	76	3.75E-02	5.1	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:49:37.95

	Acquisition Start: 26-AUG-2005 12:01:39.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.20

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.40	0	0	0.00	231.50	187	90	0.00E+00	0.0	
2	0	4362.25	2	0	74.45	307.00	286	43	3.33E-05	70.7	
3	0	4477.14	0	0	0.00	345.50	331	30	0.00E+00	0.0	
4	0	4720.05	3	0	189.22	427.50	387	82	5.00E-05	57.7	
5	0	5259.18	4	0	167.50	612.50	575	76	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:49:38.26

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4184.46*	70	0	72.89	247.77	187	90	6.86E-03	12.0	
2	0	4361.65*	5	0	0.00	306.80	286	43	4.57E-04	48.3	
3	0	4460.76*	1	0	3.10	340.00	331	30	9.80E-05	100.0	
4	0	4753.74*	63	0	42.92	438.94	387	82	6.22E-03	12.6	
5	0	5302.07*	381	0	66.53	627.40	575	76	3.74E-02	5.1	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL03
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:45:46
Sample ID        : 06 Sample quantity : 1.0334 gram
Sample type      : UU Sample geometry :
Detector name    : 035 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.30 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type  : Average value Efficiencies at : Peak Energy
Abundance limit  : 75.00
    
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4184.46*	70	72.89	247.77	187	90	23.9		U-238	0.873
0	4361.65*	5	0.00	306.80	286	43	96.5		U-235	7.201E-02
0	4460.76*	1	3.10	340.00	331	30200.0			U-236	1.387E-02
0	4753.74*	63	42.92	438.94	387	82	25.2		U-234	0.795
0	5302.07*	381	66.53	627.40	575	76	10.3		U232	4.78

Eberline Services
Oak Ridge Laboratory

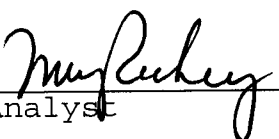
ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:49:59

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$07_UU.CNF

BATCH ID:	0508094A-UU	*	SAMPLE ID:	07
SAMPLE DATE:	17-AUG-2005 00:00	*	ALIQOT:	1.018E+00 gram
SAMPLE TITLE:	VPSCR081705SL04	*	DETECTOR NUMBER:	036
ACQ DATE:	2-SEP-2005 09:46	*	AVERAGE EFFICIENCY:	20.93%
ELAPSED LIVE TIME:	10200.	*	RECOVERY:	112.97%
TRACER ID:	UU-10A	*	TRACER FWHM (kev):	34.64
LAMBDA VALUE:	602.	*	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.505	*	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	*	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	*	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_036_26AUG05	*	BKG ELAPSED TIME:	60000.

NUCLIDE ACTIVITY SUMMARY

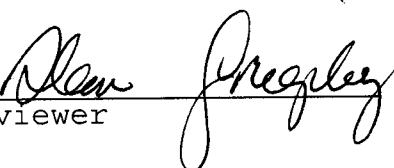
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	501.49	0.51	99.8	5.532E+00	6.761E-01	6.650E-02
U-234	4761.5	65.83	0.17	99.8	7.259E-01	2.062E-01	5.102E-02
U-235	4385.5	3.00	0.00	80.9	4.081E-02	4.747E-02	3.686E-02
U-236	4485.2	1.00	0.00	90.1	1.221E-02	2.449E-02	3.310E-02
U-238	4184.4	52.00	0.00	100.2	5.709E-01	1.775E-01	2.975E-02



Analyst

9.2.05

Date



Reviewer

9/2/05

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-UU\$07_UU.CNF;1

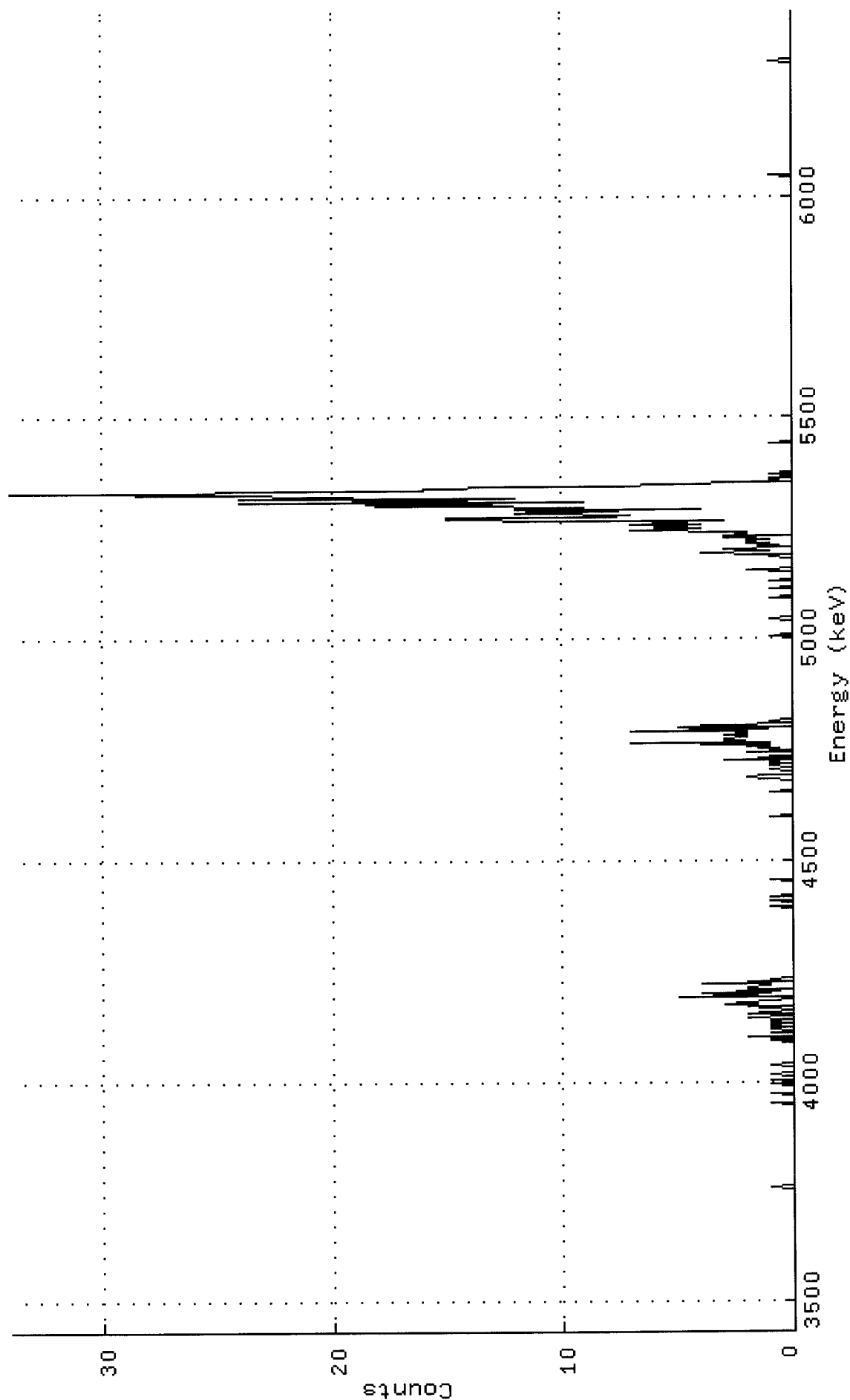
Title : 036

Sample Title: VPSCR081705SL04

Start Time: 2-SEP-2005 09:46: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42318E+03

Real Time : 0 02:50:00.40 Sample ID : 07 Energy Slope : 3.08239E+00

Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.58962E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$07_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	1	0	0	0	0	0	0	1	0	0	0
183:	0	0	0	1	0	0	1	0	0	0	0	1	0	0
197:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
225:	0	1	0	1	1	0	1	1	0	1	0	0	2	0
239:	0	2	1	0	0	1	2	0	3	2	1	1	0	0
253:	5	2	1	4	1	0	2	2	1	1	4	0	1	1
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
323:	0	1	0	0	0	1	0	0	0	0	0	0	0	0
337:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
393:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
407:	0	1	0	0	0	0	0	0	0	0	0	1	2	1
421:	0	0	0	0	1	0	0	1	0	1	1	0	3	0
435:	1	0	0	0	2	0	1	2	1	1	7	1	3	3
449:	3	2	2	3	2	2	7	2	0	5	3	0	0	1
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
533:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	1	1	0	0	0
561:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	2	1	0	0	0	0	0	0	0	0	0
589:	1	0	1	4	1	1	3	0	0	1	2	1	2	1
603:	1	3	0	3	2	3	2	7	5	4	5	7	4	6
617:	3	10	15	15	8	7	11	12	11	4	12	9	15	18
631:	13	24	9	19	12	24	19	26	23	34	16	16	16	12
645:	7	6	1	0	1	0	1	0	0	1	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	1	1	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:49:44.66

Detector ID: 36	Acquisition Start: 2-SEP-2005 09:46:03.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.40
Batch Id: 0508094A-UU	Sample Id: 07
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4169.11	52	0	50.93	245.10	189	91	5.10E-03	13.9	
2	0	4405.19	3	0	27.74	324.00	289	43	2.94E-04	57.7	
3	0	4452.82	1	0	3.08	340.00	334	30	9.80E-05	100.0	
4	0	4765.28	66	0	44.18	445.65	390	82	6.47E-03	12.3	
5	0	5299.77	502	0	34.64	629.23	577	77	4.92E-02	4.5	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:49:57.68

	Acquisition Start: 26-AUG-2005 12:01:42.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.75	0	0	0.00	234.00	189	91	0.00E+00	0.0	
2	0	4363.44	0	0	0.00	310.00	289	43	0.00E+00	0.0	
3	0	4478.09	0	0	0.00	348.50	334	30	0.00E+00	0.0	
4	0	4720.69	1	0	3.08	430.50	390	82	1.67E-05	100.0	
5	0	5258.73	3	0	86.31	615.00	577	77	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:49:57.99

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4169.11*	52	0	50.93	245.10	189	91	5.10E-03	13.9	
2	0	4405.19*	3	0	27.74	324.00	289	43	2.94E-04	57.7	
3	0	4452.82*	1	0	3.08	340.00	334	30	9.80E-05	100.0	
4	0	4765.28*	66	0	44.18	445.65	390	82	6.45E-03	12.3	
5	0	5299.77*	501	0	34.64	629.23	577	77	4.92E-02	4.5	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL04
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:46:03
 Sample ID : 07 Sample quantity : 1.0182 gram
 Sample type : UU Sample geometry :
 Detector name : 036 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.40 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4169.11*	52	50.93	245.10	189	91	27.7		U-238	0.645
0	4405.19*	3	27.74	324.00	289	431	15.5		U-235	4.610E-02
0	4452.82*	1	3.08	340.00	334	302	00.0		U-236	1.380E-02
0	4765.28*	66	44.18	445.65	390	82	24.7		U-234	0.820
0	5299.77*	501	34.64	629.23	577	77	8.9		U232	6.25

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:50:07

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$08_UU.CNF

BATCH ID: 0508094A-UU * SAMPLE ID: 08
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.046E+00 gram
SAMPLE TITLE: VPSCR081705SL05 * DETECTOR NUMBER: 037
ACQ DATE: 2-SEP-2005 09:46 * AVERAGE EFFICIENCY: 21.04%
ELAPSED LIVE TIME: 10200. * RECOVERY: 86.06%
TRACER ID: UU-10A * TRACER FWHM (kev): 54.10
LAMBDA VALUE: 597. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.403 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_037_26AUG05 * BKG ELAPSED TIME: 60000.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	380.83	0.17	99.8	5.342E+00	7.057E-01	6.488E-02
U-234	4761.5	72.83	0.17	99.8	1.021E+00	2.840E-01	6.488E-02
U-235	4385.5	6.00	0.00	80.9	1.038E-01	8.614E-02	4.687E-02
U-236	4485.2	-0.34	0.34	90.1	-5.280E-03	7.509E-03	8.420E-02
U-238	4184.4	60.00	0.00	100.2	8.376E-01	2.498E-01	3.783E-02

Murphy
Analyst

9-2-05
Date

Alan J. Gregory
Reviewer

9/2/05
Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-UU\$08_UU.CNF;1

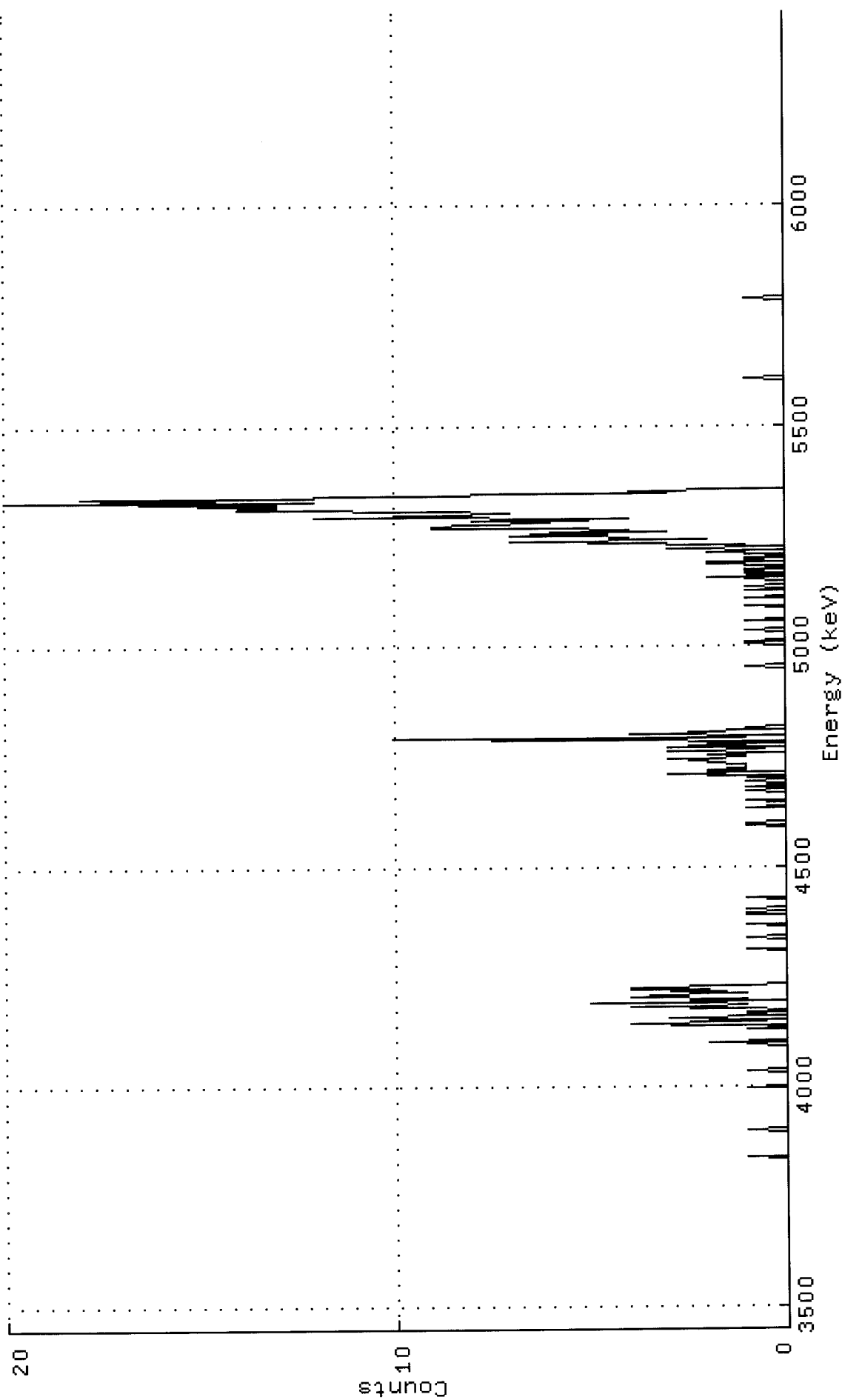
Title : 037

Sample Title: VPSCR081705SL05

Start Time: 2-SEP-2005 09:46: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.43795E+03

Real Time : 0 02:50:00.30 Sample ID : 08 Energy Slope : 3.11040E+00

Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.80693E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$08_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
183:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	1	0	2	0	0	0	0	0	0	0	0
225:	0	1	0	0	2	4	1	0	1	3	0	0	1	0
239:	1	0	1	4	2	1	2	5	0	2	1	4	3	2
253:	1	2	4	2	4	1	1	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
295:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
309:	0	0	0	1	1	0	0	1	0	0	0	0	0	0
323:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	1	0	1	0	0	0	0	0	0	0	0	0	0	1
393:	1	0	0	0	0	1	0	0	0	0	0	0	0	1
407:	0	0	1	0	0	0	1	0	0	0	2	0	3	1
421:	0	2	1	1	1	1	2	2	2	3	2	1	1	2
435:	0	3	2	1	0	3	2	0	2	0	5	10	2	0
449:	4	3	2	1	0	1	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	1	0	1	0	0	0	0	0	0	0	1	0	0	0
533:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
547:	0	1	0	0	0	0	0	0	1	0	0	0	1	0
561:	1	0	1	1	0	0	0	0	1	0	2	0	0	0
575:	1	1	0	0	1	0	2	2	0	1	0	1	0	1
589:	0	2	1	0	3	0	1	1	5	3	7	2	4	4
603:	5	7	6	3	6	4	6	9	9	8	8	6	8	6
617:	4	11	12	8	8	7	9	13	14	13	15	13	13	20
631:	12	17	18	12	12	4	3	4	1	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:50:03.81

Detector ID: 37	Acquisition Start: 2-SEP-2005 09:46:21.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.30
Batch Id: 0508094A-UU	Sample Id: 08
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4183.36	60	0	87.79	243.08	183	90	5.88E-03	12.9	
2	0	4366.81	6	0	99.53	304.00	282	42	5.88E-04	40.8	
3	0	4477.58	0	0	0.00	341.00	327	29	0.00E+00	0.0	
4	0	4757.23	73	0	5.01	435.15	382	82	7.16E-03	11.7	
5	0	5294.09	381	0	54.10	619.01	569	77	3.74E-02	5.1	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:50:05.30

	Acquisition Start: 26-AUG-2005 12:01:45.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4136.21	0	0	0.00	227.50	183	90	0.00E+00	0.0	
2	0	4362.31	0	0	0.00	302.50	282	42	0.00E+00	0.0	
3	0	4477.58	2	0	0.00	341.00	327	29	3.33E-05	70.7	
4	0	4719.84	1	0	0.00	422.50	382	82	1.67E-05	100.0	
5	0	5259.39	1	0	3.11	607.00	569	77	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:50:05.60

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4183.36*	60	0	87.79	243.08	183	90	5.88E-03	12.9	
2	0	4366.81*	6	0	99.53	304.00	282	42	5.88E-04	40.8	
3	0	4477.58*	0	0	0.00	341.00	327	29	3.33E-05	70.7	
4	0	4757.23*	73	0	5.01	435.15	382	82	7.14E-03	11.7	
5	0	5294.09*	381	0	54.10	619.01	569	77	3.73E-02	5.1	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL05
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:46:21
 Sample ID : 08 Sample quantity : 1.0459 gram
 Sample type : UU Sample geometry :
 Detector name : 037 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.30 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4183.36*	60	87.79	243.08	183	90	25.8		U-238	0.721
0	4366.81*	6	99.53	304.00	282	42	81.6		U-235	8.931E-02
0	4477.58*	0	0.00	341.00	327	291	41.4		U-236	-4.544E-03
0	4757.23*	73	5.01	435.15	382	82	23.5		U-234	0.879
0	5294.09*	381	54.10	619.01	569	77	10.3		U232	4.60

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:50:16

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$09_UU.CNF

BATCH ID:	0508094A-UU	*	SAMPLE ID:	09
SAMPLE DATE:	17-AUG-2005 00:00	*	ALIQOT:	1.021E+00 gram
SAMPLE TITLE:	VPSCR081705SL06	*	DETECTOR NUMBER:	038
ACQ DATE:	2-SEP-2005 09:46	*	AVERAGE EFFICIENCY:	20.12%
ELAPSED LIVE TIME:	10200.	*	RECOVERY:	107.13%
TRACER ID:	UU-10A	*	TRACER FWHM (kev):	27.34
LAMBDA VALUE:	591.	*	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.275	*	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	*	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	*	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_038_26AUG05	*	BKG ELAPSED TIME:	60000.

NUCLIDE ACTIVITY SUMMARY

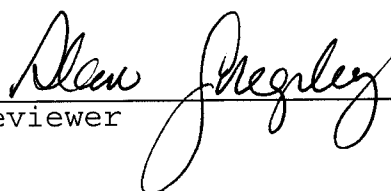
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	448.66	0.34	99.8	5.418E+00	6.827E-01	6.543E-02
U-234	4761.5	76.83	0.17	99.8	9.273E-01	2.504E-01	5.585E-02
U-235	4385.5	2.49	0.51	80.9	3.707E-02	5.259E-02	8.979E-02
U-236	4485.2	2.66	0.34	90.1	3.556E-02	4.704E-02	7.248E-02
U-238	4184.4	62.49	0.51	100.2	7.510E-01	2.194E-01	7.248E-02



Analyst

9.2.05

Date



Reviewer

9/2/05

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-UU\$09_UU.CNF;1

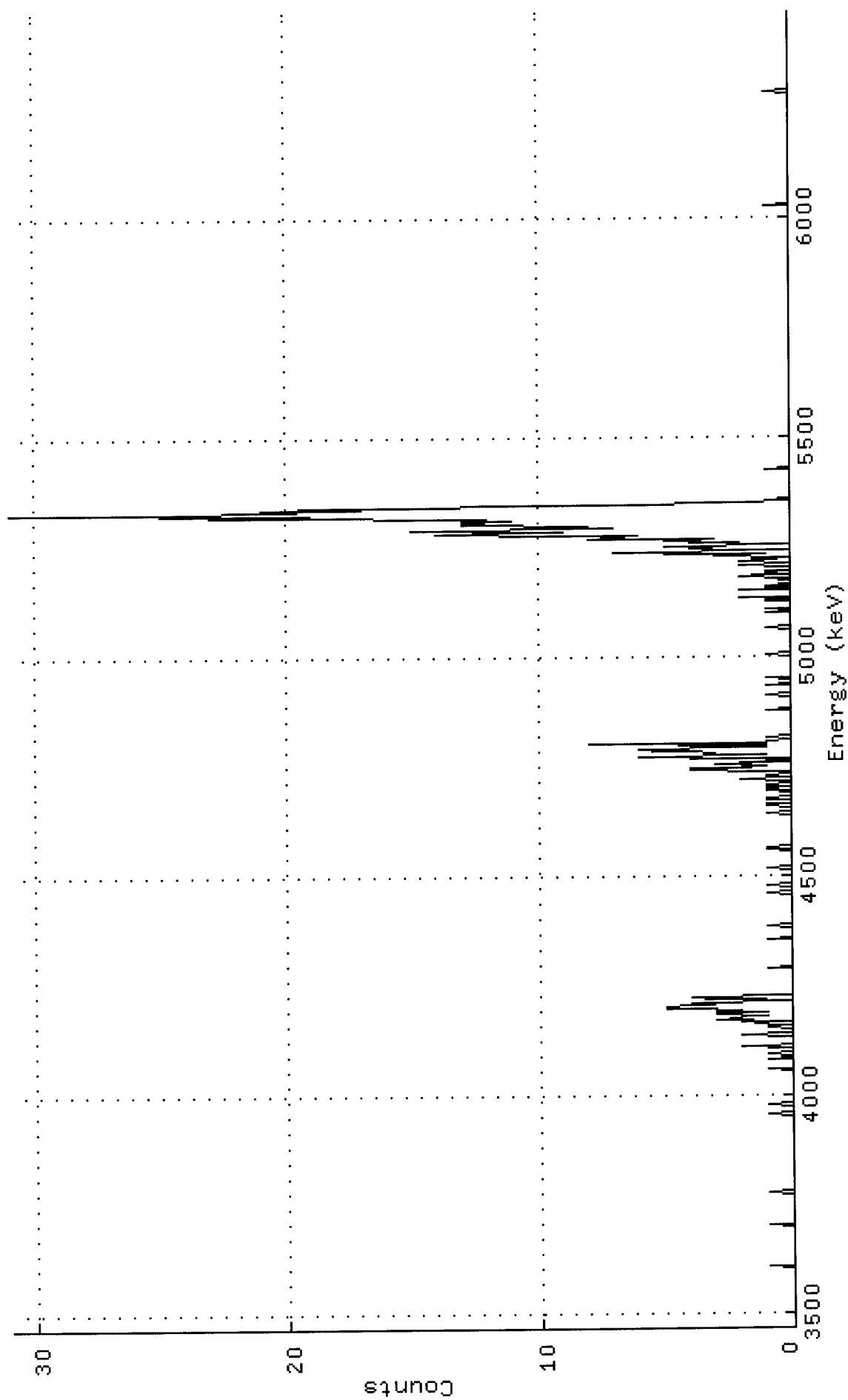
Title : 038

Sample Title: VPSCR081705SL06

Start Time: 2-SEP-2005 09:46: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45434E+03

Real Time : 0 02:50:00.50 Sample ID : 09 Energy Slope : 3.08936E+00

Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.46447E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$09_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
169:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	1	0	0	0	0	0	0	0	1	0	0	0	1	0
211:	0	0	0	2	1	0	0	0	0	0	0	2	2	1
225:	0	0	0	0	1	0	1	1	2	0	3	2	3	4
239:	3	3	1	3	3	5	5	4	2	4	0	2	3	4
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	1	0	0	0	0	0	0	0	0	1	1	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	1	0	0	0	0	0	1
337:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
365:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
393:	0	0	0	0	1	1	0	0	0	1	1	0	0	0
407:	0	1	0	1	0	1	1	0	0	0	2	2	0	1
421:	1	0	0	1	4	4	2	1	3	0	2	0	0	2
435:	6	1	3	3	4	5	6	2	1	1	8	1	1	0
449:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
477:	0	0	0	0	0	1	0	0	0	0	0	0	0	1
491:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
533:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
547:	0	1	0	0	0	0	0	0	1	0	2	0	0	2
561:	0	0	0	2	0	0	1	0	0	0	0	1	0	0
575:	1	0	1	1	0	0	0	0	2	0	2	2	1	0
589:	0	3	1	3	7	0	2	4	3	5	0	4	2	5
603:	3	8	7	6	9	14	11	9	15	7	10	8	13	12
617:	13	11	13	12	21	23	19	31	23	22	17	21	18	8
631:	7	2	0	1	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:50:11.21

Detector ID: 38	Acquisition Start: 2-SEP-2005 09:46:39.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.50
Batch Id: 0508094A-UU	Sample Id: 09
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4184.28	63	0	53.97	238.98	178	90	6.18E-03	12.6	
2	0	4374.97	3	0	33.98	302.33	277	43	2.94E-04	57.7	
3	0	4482.81	3	0	61.79	338.33	322	30	2.94E-04	57.7	
4	0	4759.88	77	0	34.20	431.42	378	81	7.55E-03	11.4	
5	0	5301.62	449	0	27.34	615.93	564	76	4.40E-02	4.7	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:50:13.36

	Acquisition Start: 26-AUG-2005 12:01:48.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4134.47	3	0	117.40	222.50	178	90	5.00E-05	57.7	
2	0	4361.97	3	0	89.59	298.00	277	43	5.00E-05	57.7	
3	0	4477.33	2	0	24.71	336.50	322	30	3.33E-05	70.7	
4	0	4720.11	1	0	3.09	418.00	378	81	1.67E-05	100.0	
5	0	5259.61	2	0	15.45	601.50	564	76	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:50:13.66

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4184.28*	62	0	53.97	238.98	178	90	6.13E-03	12.7	
2	0	4374.97*	2	0	33.98	302.33	277	43	2.44E-04	70.6	
3	0	4482.81*	3	0	61.79	338.33	322	30	2.61E-04	65.7	
4	0	4759.88*	77	0	34.20	431.42	378	81	7.53E-03	11.4	
5	0	5301.62*	449	0	27.34	615.93	564	76	4.40E-02	4.7	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL06
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:46:39
Sample ID        : 09 Sample quantity : 1.0206 gram
Sample type      : UU Sample geometry :
Detector name    : 038 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.50 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type  : Average value Efficiencies at : Peak Energy
Abundance limit  : 75.00
    
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4184.28*	62	53.97	238.98	178	90	25.4		U-238	0.805
0	4374.97*	2	33.98	302.33	277	431	41.1		U-235	3.972E-02
0	4482.81*	3	61.79	338.33	322	301	31.5		U-236	3.810E-02
0	4759.88*	77	34.20	431.42	378	81	22.8		U-234	0.993
0	5301.62*	449	27.34	615.93	564	76	9.4		U232	5.80

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:50:30

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$10_UU.CNF

*
BATCH ID: 0508094A-UU * SAMPLE ID: 10
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.067E+00 gram
SAMPLE TITLE: VPSCR081705SL07 * DETECTOR NUMBER: 039
ACQ DATE: 2-SEP-2005 09:46 * AVERAGE EFFICIENCY: 20.45%
ELAPSED LIVE TIME: 10200. * RECOVERY: 80.27%
TRACER ID: UU-10A * TRACER FWHM (kev): 47.91
LAMBDA VALUE: 616. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.779 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_039_26AUG05 * BKG ELAPSED TIME: 60000.

NUCLIDE ACTIVITY SUMMARY

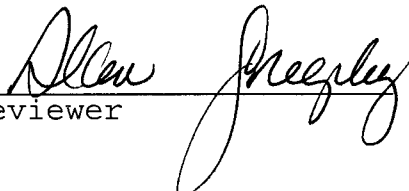
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	355.83	0.17	99.8	5.395E+00	7.279E-01	7.013E-02
U-234	4761.5	66.83	0.17	99.8	1.013E+00	2.919E-01	7.013E-02
U-235	4385.5	0.83	0.17	80.9	1.552E-02	3.800E-02	8.651E-02
U-236	4485.2	1.00	0.00	90.1	1.679E-02	3.367E-02	4.549E-02
U-238	4184.4	60.83	0.17	100.2	9.179E-01	2.739E-01	6.982E-02



Analyst

9.2.05

Date



Reviewer

9/2/05

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-UU\$10_UU.CNF;1

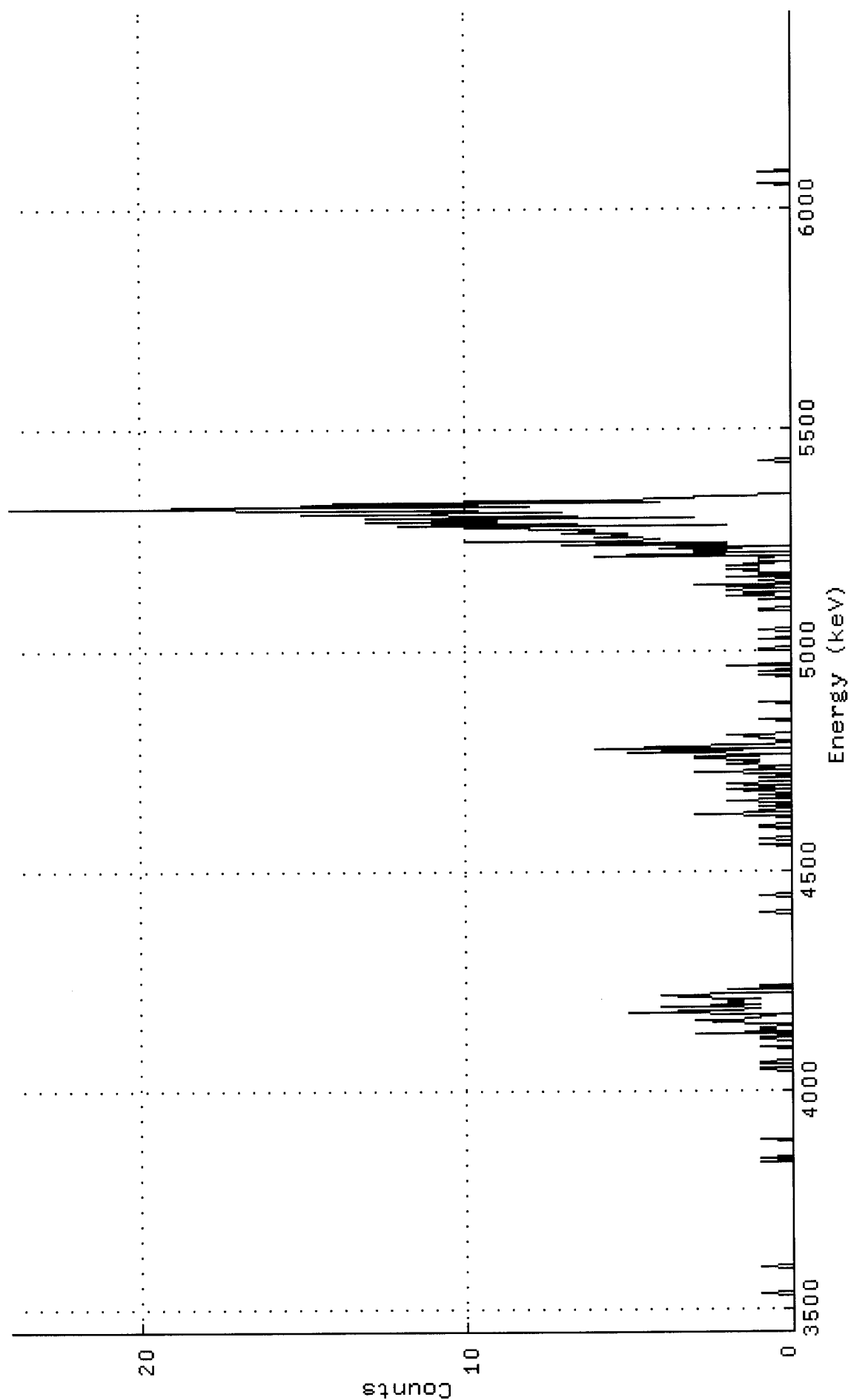
Title : 039

Sample Title: VPSCR081705SL07

Start Time: 2-SEP-2005 09:46: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.43960E+03

Real Time : 0 02:50:00.30 Sample ID : 10 Energy Slope : 3.09399E+00

Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.57003E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$10_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	1	0	0	1	0	0	0	0	0	0	0	0
141:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	1	1	0	0	0	1	1	0	0	0	0	0	0
211:	0	0	0	0	1	0	0	0	0	0	1	0	1	0
225:	0	3	0	1	1	1	0	0	1	2	3	2	1	1
239:	1	0	5	2	2	1	2	4	1	2	2	2	1	2
253:	3	4	1	0	0	0	2	0	1	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
323:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	1	0	0	0	0	1	0	0	0	0	3
379:	0	0	1	0	1	0	0	0	0	0	1	0	0	1
393:	0	1	1	0	0	1	0	0	0	2	0	0	0	1
407:	0	0	1	2	0	1	0	1	2	0	0	0	0	1
421:	0	1	0	3	0	0	1	1	0	2	1	1	1	3
435:	1	3	0	4	5	3	0	6	3	2	1	0	0	0
449:	1	1	2	1	0	0	0	0	0	0	0	0	0	0
463:	1	0	0	0	0	0	0	0	0	0	0	0	0	1
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
505:	2	0	0	0	0	0	0	0	0	0	0	0	1	1
519:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
533:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	1	1	0	0	0	0	0	0	0	1	0	1	2
561:	1	0	1	2	1	0	1	3	0	0	1	1	0	0
575:	2	0	0	1	1	2	1	1	1	2	1	0	1	1
589:	1	0	6	4	0	3	2	4	3	0	7	2	2	10
603:	5	4	5	6	5	5	7	6	6	8	8	12	2	11
617:	9	13	9	13	3	10	11	15	7	12	10	24	14	8
631:	15	4	14	6	3	4	2	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	1	0	0	0	0	0	0	0	0	0	1	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:50:20.43

Detector ID: 39	Acquisition Start: 2-SEP-2005 09:46:57.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.30
Batch Id: 0508094A-UU	Sample Id: 10
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4172.02	61	0	88.63	239.64	183	90	5.98E-03	12.8	
2	0	4401.62	1	0	3.09	316.00	282	43	9.80E-05	100.0	
3	0	4440.53	1	0	3.09	329.00	327	30	9.80E-05	100.0	
4	0	4736.04	67	0	16.13	428.33	382	83	6.57E-03	12.2	
5	0	5287.17	356	0	47.91	616.43	569	76	3.49E-02	5.3	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:50:28.51

	Acquisition Start: 26-AUG-2005 12:01:50.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.35	1	0	3.09	227.50	183	90	1.67E-05	100.0	
2	0	4362.66	1	0	3.09	303.00	282	43	1.67E-05	100.0	
3	0	4477.89	0	0	0.00	341.50	327	30	0.00E+00	0.0	
4	0	4720.26	1	0	3.09	423.00	382	83	1.67E-05	100.0	
5	0	5258.35	1	0	3.09	606.50	569	76	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:50:28.83

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4172.02*	61	0	88.63	239.64	183	90	5.96E-03	12.8	
2	0	4401.62*	1	0	3.09	316.00	282	43	8.14E-05	122.2	
3	0	4440.53*	1	0	3.09	329.00	327	30	9.80E-05	100.0	
4	0	4736.04*	67	0	16.13	428.33	382	83	6.55E-03	12.3	
5	0	5287.17*	356	0	47.91	616.43	569	76	3.49E-02	5.3	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL07
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:46:57
Sample ID        : 10 Sample quantity : 1.0670 gram
Sample type      : UU Sample geometry :
Detector name    : 039 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.30 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type  : Average value Efficiencies at : Peak Energy
Abundance limit  : 75.00
    
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw %Err	Fit	Nuclides	Activity pCi/gram
0	4172.02*	61	88.63	239.64	183	90 25.7		U-238	0.737
0	4401.62*	1	3.09	316.00	282	43244.4		U-235	1.246E-02
0	4440.53*	1	3.09	329.00	327	30200.0		U-236	1.347E-02
0	4736.04*	67	16.13	428.33	382	83 24.5		U-234	0.813
0	5287.17*	356	47.91	616.43	569	76 10.6		U232	4.33

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:50:43

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$11_UU.CNF

*
BATCH ID: 0508094A-UU * SAMPLE ID: 11
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 9.941E-01 gram
SAMPLE TITLE: VPSCR081705SL08 * DETECTOR NUMBER: 040
ACQ DATE: 2-SEP-2005 09:47 * AVERAGE EFFICIENCY: 20.89%
ELAPSED LIVE TIME: 10200. * RECOVERY: 93.92%
TRACER ID: UU-10A * TRACER FWHM (kev): 81.15
LAMBDA VALUE: 609. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.636 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_040_26AUG05 * BKG ELAPSED TIME: 60000.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	420.49	0.51	99.8	5.726E+00	7.348E-01	8.208E-02
U-234	4761.5	75.66	0.34	99.8	1.030E+00	2.810E-01	7.379E-02
U-235	4385.5	2.00	0.00	80.9	3.358E-02	4.774E-02	4.550E-02
U-236	4485.2	1.00	0.00	90.1	1.508E-02	3.023E-02	4.086E-02
U-238	4184.4	75.83	0.17	100.2	1.028E+00	2.799E-01	6.271E-02

*** Tracer FWHM > 80.0 Kev ***

Murphy
Analyst

9.2.05
Date

Alan Freeply
Reviewer

9/2/05
Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-UU\$11_UU.CNF;1

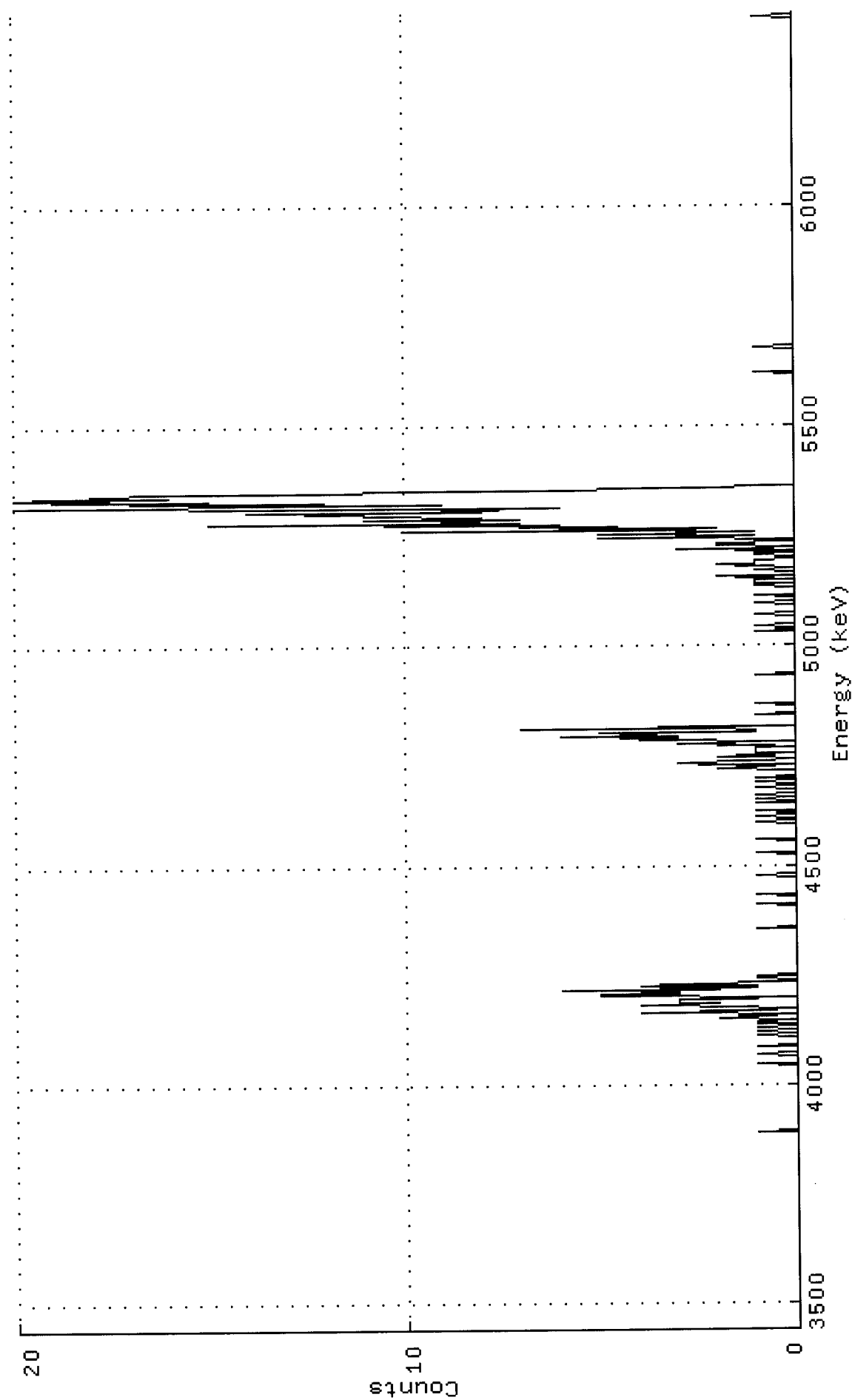
Title : 040

Sample Title: VPSCR081705SL08

Start Time: 2-SEP-2005 09:47: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.43216E+03

Real Time : 0 02:50:00.30 Sample ID : 11 Energy Slope : 3.09948E+00

Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.65420E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$11_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	1	0	0	0	0	0	0	0	1	0	0
211:	0	0	0	1	0	0	0	0	0	0	0	1	0	0
225:	1	0	0	1	0	1	0	1	0	0	2	1	1	0
239:	3	4	1	0	2	1	4	2	3	3	3	2	0	5
253:	5	3	4	2	6	1	1	4	3	0	0	0	1	0
267:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
323:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
365:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
379:	0	0	0	0	0	1	0	0	0	1	0	0	0	0
393:	0	0	0	0	0	0	1	0	1	0	0	1	0	0
407:	0	0	0	1	0	0	0	1	1	0	0	1	0	0
421:	0	0	0	2	2	1	0	2	3	1	1	0	1	2
435:	1	0	1	1	1	1	0	1	3	3	0	4	3	3
449:	6	3	4	5	1	1	2	7	0	0	0	0	0	0
463:	0	0	0	1	0	0	0	0	0	0	0	1	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
533:	0	0	1	0	0	0	0	0	0	0	0	1	0	0
547:	0	0	0	0	0	0	1	0	0	0	0	1	0	0
561:	0	0	0	0	0	1	0	1	1	1	0	1	2	0
575:	0	0	0	1	0	0	1	2	1	1	1	1	0	0
589:	0	1	0	1	0	3	1	0	2	1	2	0	1	0
603:	3	5	1	4	5	1	4	10	2	7	6	6	15	7
617:	9	7	11	8	11	11	11	14	8	9	6	11	20	11
631:	9	15	19	15	20	19	16	18	16	15	7	3	3	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:50:35.55

Detector ID: 40	Acquisition Start: 2-SEP-2005 09:47:15.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.30
Batch Id: 0508094A-UU	Sample Id: 11
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4188.24	76	0	68.15	247.20	185	90	7.45E-03	11.5	
2	0	4383.10	2	0	58.89	312.00	284	43	1.96E-04	70.7	
3	0	4475.82	1	0	3.10	343.00	329	30	9.80E-05	100.0	
4	0	4762.90	76	0	32.91	439.66	385	82	7.45E-03	11.5	
5	0	5303.98	421	0	81.15	624.74	572	76	4.13E-02	4.9	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:50:41.25

Live Time: 0 16:40:00.00	Acquisition Start: 26-AUG-2005 12:01:53.01
	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4134.78	1	0	3.10	229.50	185	90	1.67E-05	100.0	
2	0	4362.11	0	0	0.00	305.00	284	43	0.00E+00	0.0	
3	0	4477.31	0	0	0.00	343.50	329	30	0.00E+00	0.0	
4	0	4721.04	2	0	176.67	425.50	385	82	3.33E-05	70.7	
5	0	5259.84	3	0	3.10	609.50	572	76	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:50:41.56

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4188.24*	76	0	68.15	247.20	185	90	7.43E-03	11.5	
2	0	4383.10*	2	0	58.89	312.00	284	43	1.96E-04	70.7	
3	0	4475.82*	1	0	3.10	343.00	329	30	9.80E-05	100.0	
4	0	4762.90*	76	0	32.91	439.66	385	82	7.42E-03	11.5	
5	0	5303.98*	420	0	81.15	624.74	572	76	4.12E-02	4.9	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL08
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:47:15
 Sample ID : 11 Sample quantity : 0.99410 gram
 Sample type : UU Sample geometry :
 Detector name : 040 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.30 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4188.24*	76	68.15	247.20	185	90	23.0		U-238	0.965
0	4383.10*	2	58.89	312.00	284	43141.4			U-235	3.154E-02
0	4475.82*	1	3.10	343.00	329	30200.0			U-236	1.416E-02
0	4762.90*	76	32.91	439.66	385	82	23.1		U-234	0.967
0	5303.98*	420	81.15	624.74	572	76	9.8		U232	5.38

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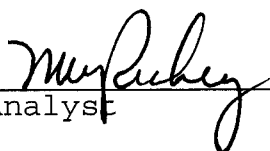
ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:50:53

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$12_UU.CNF

*
BATCH ID: 0508094A-UU * SAMPLE ID: 12
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.161E+00 gram
SAMPLE TITLE: VPSCR081705SL09 * DETECTOR NUMBER: 041
ACQ DATE: 2-SEP-2005 09:47 * AVERAGE EFFICIENCY: 21.11%
ELAPSED LIVE TIME: 10200. * RECOVERY: 96.12%
TRACER ID: UU-10A * TRACER FWHM (kev): 54.61
LAMBDA VALUE: 608. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.613 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_041_26AUG05 * BKG ELAPSED TIME: 60000.

NUCLIDE ACTIVITY SUMMARY

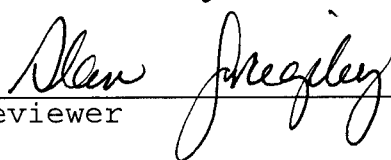
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	434.00	0.00	99.8	4.893E+00	6.220E-01	3.054E-02
U-234	4761.5	92.00	0.00	99.8	1.037E+00	2.632E-01	3.054E-02
U-235	4385.5	4.00	0.00	80.9	5.561E-02	5.619E-02	3.768E-02
U-236	4485.2	2.83	0.17	90.1	3.533E-02	4.375E-02	5.776E-02
U-238	4184.4	63.00	0.00	100.2	7.070E-01	2.055E-01	3.041E-02



Analyst

9-2-05

Date



Reviewer

9/2/05

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-UU\$12_UU.CNF;1

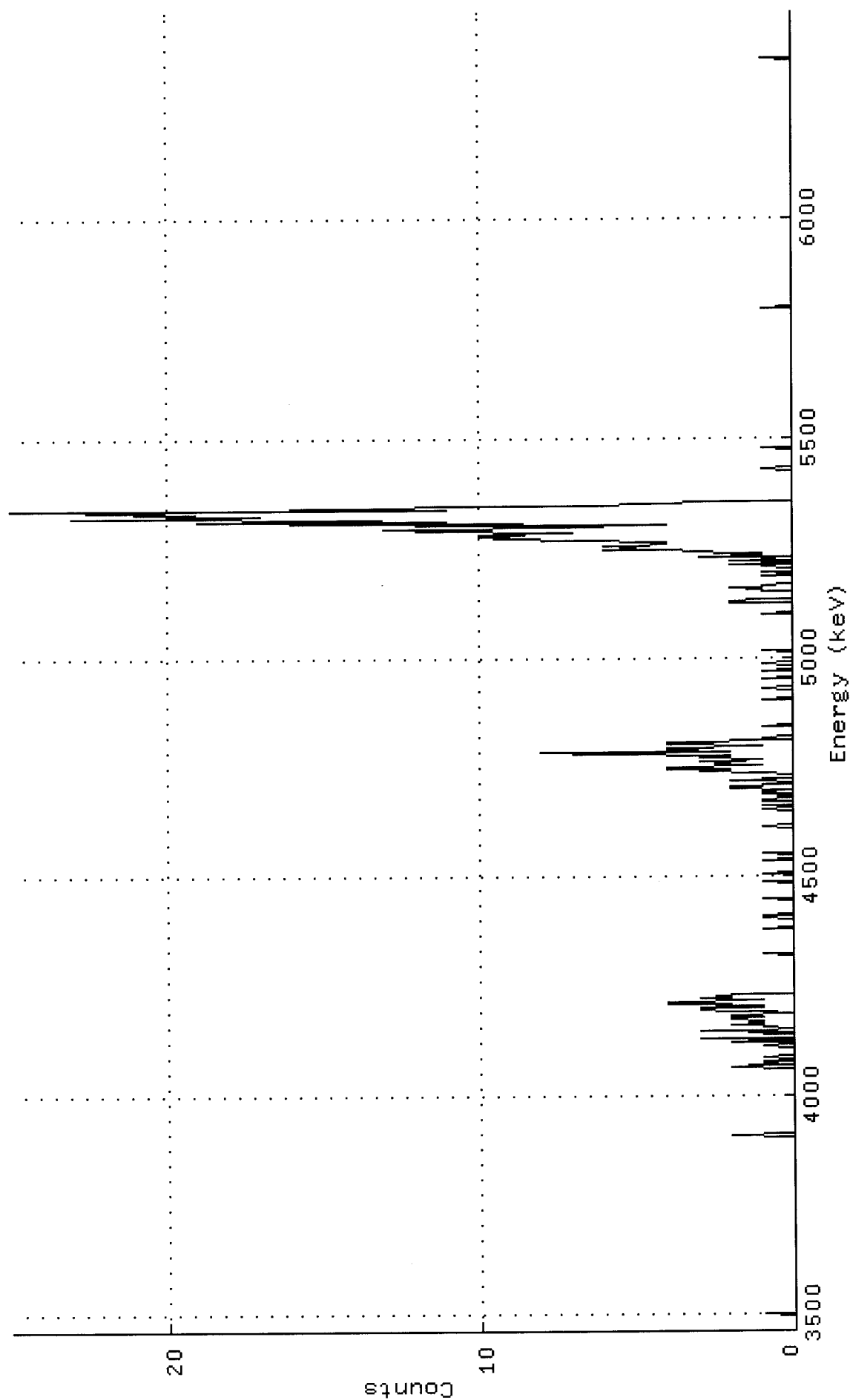
Title : 041

Sample Title: VPSCR081705SL09

Start Time: 2-SEP-2005 09:47: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45145E+03

Real Time : 0 02:50:00.30 Sample ID : 12 Energy Slope : 3.11669E+00

Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.68087E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$12_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	2	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	2	1	0	1	0	1	0	1	0	0	0	0
211:	0	0	0	0	1	0	0	2	0	3	0	0	0	1
225:	0	3	1	0	1	1	2	1	1	1	2	1	2	2
239:	0	1	2	3	3	1	1	4	2	4	1	3	3	2
253:	2	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
309:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
323:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
337:	0	1	0	0	0	0	0	0	1	0	0	0	0	0
351:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	1	1	0	0	0	0	0	0	0	0	0	0	0
393:	0	1	0	1	0	0	0	1	1	0	0	0	1	0
407:	1	0	0	2	1	2	0	0	1	2	0	0	0	0
421:	1	1	3	2	4	4	1	2	2	3	2	1	3	2
435:	2	6	8	2	4	3	4	1	4	4	4	0	1	1
449:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
491:	0	0	0	1	0	0	0	0	0	1	0	0	0	0
505:	1	1	0	0	0	0	0	0	0	0	1	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
547:	0	0	0	0	0	0	2	2	1	0	0	0	0	0
561:	0	1	1	2	1	1	0	0	0	0	0	0	0	1
575:	0	1	0	0	0	0	1	0	2	0	2	0	1	0
589:	3	1	1	2	3	4	6	5	6	5	4	5	4	7
603:	9	10	9	10	7	8	11	13	13	6	12	4	13	19
617:	11	15	20	23	17	21	20	20	25	11	16	8	6	5
631:	2	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:50:47.82

Detector ID: 41	Acquisition Start: 2-SEP-2005 09:47:32.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.30
Batch Id: 0508094A-UU	Sample Id: 12
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4175.50	63	0	100.72	235.30	178	89	6.18E-03	12.6	
2	0	4378.86	4	0	96.62	302.50	276	43	3.92E-04	50.0	
3	0	4479.68	3	0	65.45	336.00	321	29	2.94E-04	57.7	
4	0	4759.96	92	0	6.59	429.80	376	82	9.02E-03	10.4	
5	0	5300.61	434	0	54.61	613.62	562	76	4.25E-02	4.8	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:50:50.78

	Acquisition Start: 26-AUG-2005 12:01:56.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.07	0	0	0.00	222.00	178	89	0.00E+00	0.0	
2	0	4362.28	0	0	0.00	297.00	276	43	0.00E+00	0.0	
3	0	4476.67	1	0	0.00	335.00	321	29	1.67E-05	100.0	
4	0	4720.39	0	0	0.00	416.50	376	82	0.00E+00	0.0	
5	0	5259.49	0	0	0.00	599.50	562	76	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:50:51.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4175.50*	63	0	100.72	235.30	178	89	6.18E-03	12.6	
2	0	4378.86*	4	0	96.62	302.50	276	43	3.92E-04	50.0	
3	0	4479.68*	3	0	65.45	336.00	321	29	2.77E-04	61.5	
4	0	4759.96*	92	0	6.59	429.80	376	82	9.02E-03	10.4	
5	0	5300.61*	434	0	54.61	613.62	562	76	4.25E-02	4.8	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL09
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:47:32
 Sample ID : 12 Sample quantity : 1.1611 gram
 Sample type : UU Sample geometry :
 Detector name : 041 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.30 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4175.50*	63100.72	235.30	178	89	25.2			U-238	0.680
0	4378.86*	4 96.62	302.50	276	43100.0				U-235	5.346E-02
0	4479.68*	3 65.45	336.00	321	29123.0				U-236	3.396E-02
0	4759.96*	92 6.59	429.80	376	82 20.9				U-234	0.997
0	5300.61*	434 54.61	613.62	562	76 9.6				U232	4.70

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:51:08

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$13_UU.CNF

*
BATCH ID: 0508094A-UU * SAMPLE ID: 13
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.049E+00 gram
SAMPLE TITLE: VPSCR081705SL10 * DETECTOR NUMBER: 042
ACQ DATE: 2-SEP-2005 09:47 * AVERAGE EFFICIENCY: 21.73%
ELAPSED LIVE TIME: 10200. * RECOVERY: 85.31%
TRACER ID: UU-10A * TRACER FWHM (kev): 57.03
LAMBDA VALUE: 603. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.509 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_042_26AUG05 * BKG ELAPSED TIME: 60000.

NUCLIDE ACTIVITY SUMMARY

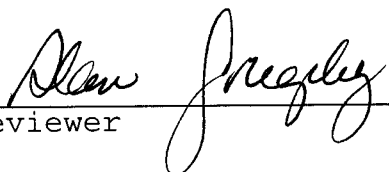
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	393.32	0.68	99.8	5.371E+00	7.029E-01	8.933E-02
U-234	4761.5	92.00	0.00	99.8	1.256E+00	3.212E-01	3.699E-02
U-235	4385.5	4.00	0.00	80.9	6.736E-02	6.809E-02	4.563E-02
U-236	4485.2	4.00	0.00	90.1	6.048E-02	6.114E-02	4.097E-02
U-238	4184.4	72.00	0.00	100.2	9.786E-01	2.724E-01	3.683E-02



Analyst

9.2.05

Date



Reviewer

9/2/05

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-UU\$13_UU.CNF;1

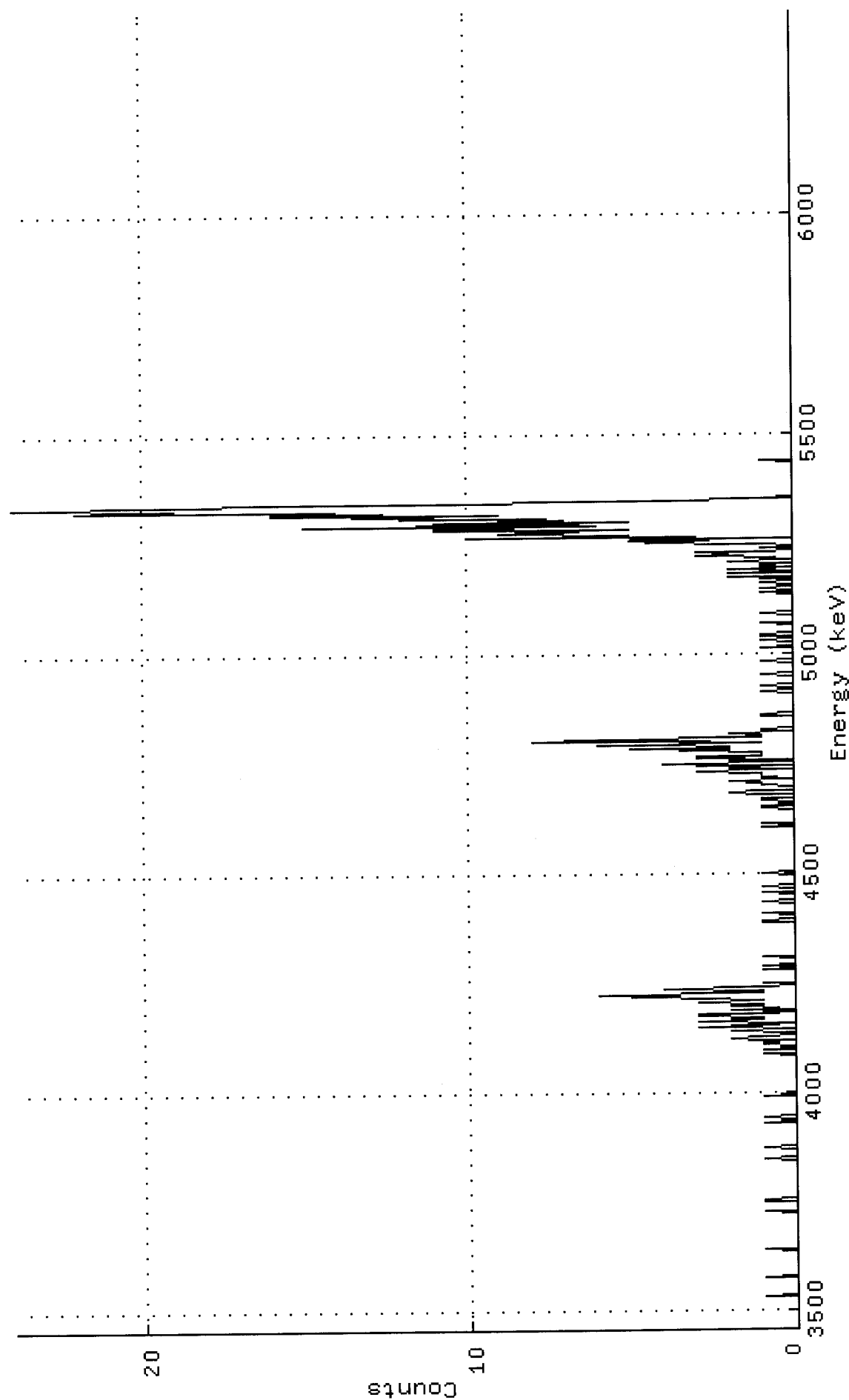
Title : 042

Sample Title: VPSCR081705SL10

Start Time: 2-SEP-2005 09:47: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44878E+03

Real Time : 0 02:50:00.30 Sample ID : 13 Energy Slope : 3.12999E+00

Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.86374E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$13_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	1	0	0	0	0	0	0	0	1	1
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	1	0	0	0	1	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	1	0	0	0	1
211:	0	0	0	1	1	0	1	2	1	1	0	1	0	2
225:	0	2	3	1	0	0	3	1	2	1	3	3	1	0
239:	2	0	1	1	2	1	3	1	1	3	4	4	6	1
253:	2	1	4	1	1	0	1	0	0	0	0	0	0	0
267:	0	0	0	1	0	0	1	0	0	0	0	0	1	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	1	1	0
309:	0	0	0	1	0	0	0	0	0	0	0	0	1	0
323:	0	0	0	0	0	1	0	0	0	0	1	0	0	0
337:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
379:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
393:	0	1	0	0	0	1	1	0	0	0	1	2	1	0
407:	0	0	0	1	1	2	2	0	1	1	1	1	1	3
421:	1	0	2	0	2	4	0	2	0	3	3	1	1	1
435:	2	2	5	2	2	4	6	1	4	8	6	1	1	1
449:	2	0	0	1	0	0	0	0	0	0	0	0	0	0
463:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	1	1	0	0	0	1	0	0	0	0
491:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
505:	1	0	0	0	0	0	0	0	0	0	0	1	0	0
519:	0	0	1	1	0	0	1	1	0	0	0	0	0	0
533:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
561:	1	1	0	0	0	1	0	0	0	2	0	0	0	2
575:	0	1	2	0	1	1	0	2	0	0	1	2	3	2
589:	3	1	0	1	0	0	1	2	4	5	5	0	10	3
603:	7	7	9	8	5	11	11	6	15	8	5	11	7	8
617:	12	11	16	9	16	14	22	19	24	24	19	16	12	5
631:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
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Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:50:56.77

Detector ID: 42	Acquisition Start: 2-SEP-2005 09:47:52.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.30
Batch Id: 0508094A-UU	Sample Id: 13
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4186.37	72	0	22.62	239.06	178	90	7.06E-03	11.8	
2	0	4374.02	4	0	106.42	301.00	277	42	3.92E-04	50.0	
3	0	4465.13	4	0	0.00	331.25	321	30	3.92E-04	50.0	
4	0	4759.76	92	0	27.27	429.85	376	82	9.02E-03	10.4	
5	0	5302.65	394	0	57.03	614.80	562	76	3.86E-02	5.0	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:51:05.48

	Acquisition Start: 26-AUG-2005 12:01:59.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.97	0	0	0.00	222.50	178	90	0.00E+00	0.0	
2	0	4363.45	0	0	0.00	297.50	277	42	0.00E+00	0.0	
3	0	4477.91	0	0	0.00	335.50	321	30	0.00E+00	0.0	
4	0	4720.08	0	0	0.00	416.50	376	82	0.00E+00	0.0	
5	0	5258.22	4	0	65.73	599.50	562	76	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:51:05.79

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4186.37*	72	0	22.62	239.06	178	90	7.06E-03	11.8	
2	0	4374.02*	4	0	106.42	301.00	277	42	3.92E-04	50.0	
3	0	4465.13*	4	0	0.00	331.25	321	30	3.92E-04	50.0	
4	0	4759.76*	92	0	27.27	429.85	376	82	9.02E-03	10.4	
5	0	5302.65*	393	0	57.03	614.80	562	76	3.86E-02	5.0	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL10
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:47:52
 Sample ID : 13 Sample quantity : 1.0491 gram
 Sample type : UU Sample geometry :
 Detector name : 042 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.30 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4186.37*	72	22.62	239.06	178	90	23.6		U-238	0.835
0	4374.02*	4106.42	301.00	277	42100.0				U-235	5.746E-02
0	4465.13*	4	0.00	331.25	321	30100.0			U-236	5.159E-02
0	4759.76*	92	27.27	429.85	376	82	20.9		U-234	1.07
0	5302.65*	393	57.03	614.80	562	76	10.1		U232	4.58

Eberline Services
Oak Ridge Laboratory

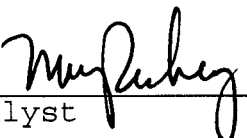
ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:51:28

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$14_UU.CNF

*
BATCH ID: 0508094A-UU * SAMPLE ID: 14
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.102E+00 gram
SAMPLE TITLE: VPSCR081705SL11 * DETECTOR NUMBER: 043
ACQ DATE: 2-SEP-2005 09:48 * AVERAGE EFFICIENCY: 21.73%
ELAPSED LIVE TIME: 10200. * RECOVERY: 85.26%
TRACER ID: UU-10A * TRACER FWHM (kev): 30.34
LAMBDA VALUE: 601. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.470 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_043_26AUG05 * BKG ELAPSED TIME: 60000.

NUCLIDE ACTIVITY SUMMARY


NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	391.83	0.17	99.8	5.098E+00	6.676E-01	6.018E-02
U-234	4761.5	60.00	0.00	99.8	7.803E-01	2.323E-01	3.524E-02
U-235	4385.5	1.83	0.17	80.9	2.936E-02	4.591E-02	7.424E-02
U-236	4485.2	1.00	0.00	90.1	1.441E-02	2.889E-02	3.904E-02
U-238	4184.4	60.00	0.00	100.2	7.770E-01	2.313E-01	3.509E-02



Analyst



Date



Reviewer



Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-UU\$14_UU.CNF;1

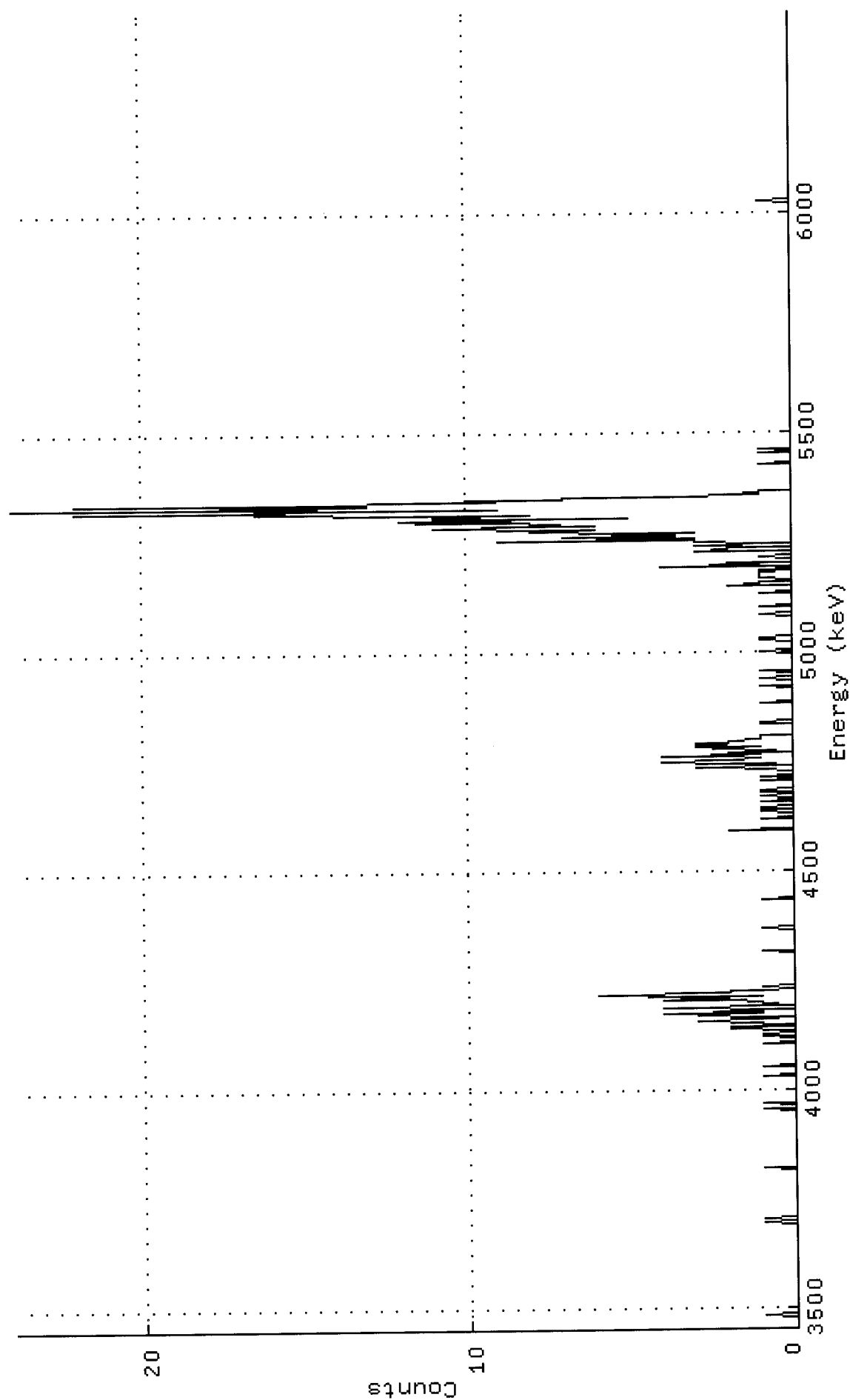
Title : 043

Sample Title: VPSCR081705SL11

Start Time: 2-SEP-2005 09:48: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44344E+03

Real Time : 0 02:50:00.30 Sample ID : 14 Energy Slope : 3.13349E+00

Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.89158E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$14_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	1	0	0	1
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
169:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
197:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	1	0	0	0	0	1	1	3	1	4	1
225:	2	2	0	0	2	1	3	1	0	1	3	1	6	2
239:	1	0	4	0	1	1	1	2	4	3	1	3	0	0
253:	2	1	0	1	1	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	2	0	0	0
379:	0	0	0	0	0	1	0	0	0	0	1	1	1	1
393:	0	0	0	0	1	0	0	0	1	0	0	0	0	0
407:	0	0	0	0	0	1	0	0	0	1	0	0	0	0
421:	1	2	3	0	1	2	4	2	2	1	2	4	1	2
435:	0	1	2	3	1	3	3	2	2	1	1	1	1	0
449:	0	0	0	0	0	0	0	0	1	1	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
477:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
491:	1	1	0	0	0	0	1	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
519:	0	0	1	1	1	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	0	1	1	0	0	0	0	0
547:	1	0	0	0	0	0	0	0	0	0	1	1	1	0
561:	0	0	2	1	1	0	0	1	1	1	1	1	0	0
575:	1	0	0	4	1	2	0	0	0	0	1	0	0	0
589:	0	3	2	2	0	3	0	1	3	3	9	3	4	7
603:	4	3	5	8	6	7	11	8	6	8	8	11	12	11
617:	11	11	8	12	16	17	22	9	24	16	13	22	15	11
631:	7	10	4	1	2	1	1	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	1	0	0	0	0	0	0	0	0	1	0	1	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:51:12.82

Detector ID: 43	Acquisition Start: 2-SEP-2005 09:48:10.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.30
Batch Id: 0508094A-UU	Sample Id: 14
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4182.45	60	0	47.25	239.30	180	89	5.88E-03	12.9	
2	0	4342.29	2	0	59.54	292.00	278	42	1.96E-04	70.7	
3	0	4477.94	1	0	0.00	337.00	323	29	9.80E-05	100.0	
4	0	4751.80	60	0	62.67	428.63	378	81	5.88E-03	12.9	
5	0	5302.31	392	0	30.34	616.14	564	76	3.84E-02	5.1	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:51:26.29

	Acquisition Start: 26-AUG-2005 12:02:03.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.85	0	0	0.00	224.00	180	89	0.00E+00	0.0	
2	0	4361.93	1	0	3.13	298.50	278	42	1.67E-05	100.0	
3	0	4477.94	0	0	0.00	337.00	323	29	0.00E+00	0.0	
4	0	4720.19	0	0	0.00	418.00	378	81	0.00E+00	0.0	
5	0	5259.80	1	0	3.13	601.50	564	76	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:51:26.58

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4182.45*	60	0	47.25	239.30	180	89	5.88E-03	12.9	
2	0	4342.29*	2	0	59.54	292.00	278	42	1.79E-04	77.8	
3	0	4477.94*	1	0	0.00	337.00	323	29	9.80E-05	100.0	
4	0	4751.80*	60	0	62.67	428.63	378	81	5.88E-03	12.9	
5	0	5302.31*	392	0	30.34	616.14	564	76	3.84E-02	5.1	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL11
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:48:10
 Sample ID : 14 Sample quantity : 1.1018 gram
 Sample type : UU Sample geometry :
 Detector name : 043 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.30 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw %Err	Fit	Nuclides	Activity pCi/gram
0	4182.45*	60	47.25	239.30	180	89 25.8		U-238	0.662
0	4342.29*	2	59.54	292.00	278	42155.7		U-235	2.503E-02
0	4477.94*	1	0.00	337.00	323	29200.0		U-236	1.228E-02
0	4751.80*	60	62.67	428.63	378	81 25.8		U-234	0.665
0	5302.31*	392	30.34	616.14	564	76 10.1		U232	4.35

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:51:40

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$15_UU.CNF

*
BATCH ID: 0508094A-UU * SAMPLE ID: 15
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.168E+00 gram
SAMPLE TITLE: VPSCR081705SL12 * DETECTOR NUMBER: 044
ACQ DATE: 2-SEP-2005 09:48 * AVERAGE EFFICIENCY: 20.99%
ELAPSED LIVE TIME: 10200. * RECOVERY: 52.44%
TRACER ID: UU-10A * TRACER FWHM (kev): 60.69
LAMBDA VALUE: 605. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.551 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_044_26AUG05 * BKG ELAPSED TIME: 60000.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	234.32	0.68	99.8	4.842E+00	7.513E-01	1.352E-01
U-234	4761.5	49.66	0.34	99.8	1.026E+00	3.403E-01	1.120E-01
U-235	4385.5	3.83	0.17	80.9	9.758E-02	1.036E-01	1.179E-01
U-236	4485.2	0.83	0.17	90.1	1.899E-02	4.652E-02	1.059E-01
U-238	4184.4	41.32	0.68	100.2	8.497E-01	3.035E-01	1.346E-01



Analyst

9.2.05

Date



Reviewer

9/2/05

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.SJS_0508094A-UU\$15_UU.CNF;1

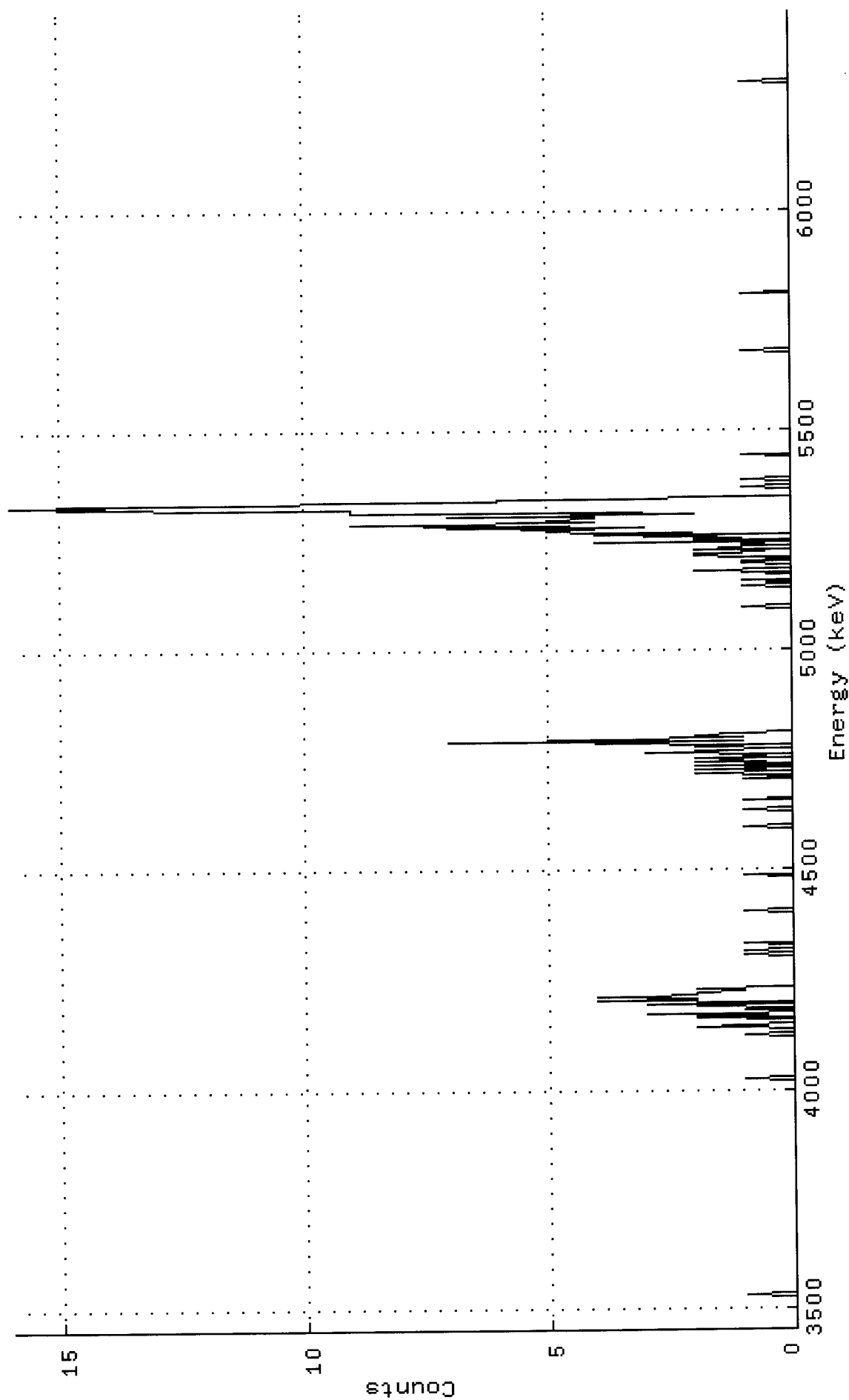
Title : 044

Sample Title: VPSCR081705SL12

Start Time: 2-SEP-2005 09:48: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44108E+03

Real Time : 0 02:50:00.30 Sample ID : 15 Energy Slope : 3.11251E+00

Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.71265E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$15_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
225:	0	0	1	2	1	0	0	0	0	2	0	1	3	1
239:	0	1	0	0	2	0	3	0	4	2	2	4	3	2
253:	2	1	1	2	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	1	0	0	1	0	0	0	0	1	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
379:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
393:	0	0	0	0	0	0	0	1	0	0	0	0	0	2
407:	0	0	0	0	0	0	0	0	0	1	0	1	0	1
421:	0	1	2	0	0	2	0	1	2	1	2	0	2	1
435:	0	3	1	2	0	2	0	1	4	1	7	3	2	1
449:	2	1	1	0	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
561:	0	0	0	1	0	0	0	1	0	0	0	0	0	2
575:	0	2	0	0	0	0	0	1	0	1	0	0	1	1
589:	2	1	1	0	2	1	1	0	1	0				

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Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:51:31.89

Detector ID: 44	Acquisition Start: 2-SEP-2005 09:48:33.01	
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.30	
Batch Id: 0508094A-UU	Sample Id: 15	
Sample Type: UU		

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4187.09	42	0	48.05	242.93	181	90	4.12E-03	15.4	
2	0	4338.35	4	0	105.83	293.00	280	43	3.92E-04	50.0	
3	0	4485.53	1	0	3.11	342.00	325	30	9.80E-05	100.0	
4	0	4764.63	50	0	9.42	435.68	380	82	4.90E-03	14.1	
5	0	5299.53	235	0	60.69	618.11	567	76	2.30E-02	6.5	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:51:38.53

	Acquisition Start: 26-AUG-2005 12:02:06.01	
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4134.25	4	0	108.94	225.50	181	90	6.67E-05	50.0	
2	0	4362.43	1	0	0.00	301.00	280	43	1.67E-05	100.0	
3	0	4478.04	1	0	3.11	339.50	325	30	1.67E-05	100.0	
4	0	4719.61	2	0	90.26	420.50	380	82	3.33E-05	70.7	
5	0	5260.01	4	0	0.00	604.50	567	76	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:51:38.82

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4187.09*	41	0	48.05	242.93	181	90	4.05E-03	15.7	
2	0	4338.35*	4	0	105.83	293.00	280	43	3.75E-04	52.4	
3	0	4485.53*	1	0	3.11	342.00	325	30	8.14E-05	122.2	
4	0	4764.63*	50	0	9.42	435.68	380	82	4.87E-03	14.2	
5	0	5299.53*	234	0	60.69	618.11	567	76	2.30E-02	6.5	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL12
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:48:33
 Sample ID : 15 Sample quantity : 1.1677 gram
 Sample type : UU Sample geometry :
 Detector name : 044 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.30 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4187.09*	41	48.05	242.93	181	90	31.4		U-238	0.446
0	4338.35*	4105.83	293.00	280	43104.8				U-235	5.117E-02
0	4485.53*	1	3.11	342.00	325	30244.4			U-236	9.957E-03
0	4764.63*	50	9.42	435.68	380	82	28.5		U-234	0.538
0	5299.53*	234	60.69	618.11	567	76	13.1		U232	2.54

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:51:51

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$16_UU.CNF

*
BATCH ID: 0508094A-UU * SAMPLE ID: 16
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.022E+00 gram
SAMPLE TITLE: VPSCR081705SL13 * DETECTOR NUMBER: 045
ACQ DATE: 2-SEP-2005 09:48 * AVERAGE EFFICIENCY: 20.55%
ELAPSED LIVE TIME: 10200. * RECOVERY: 100.72%
TRACER ID: UU-10A * TRACER FWHM (kev): 41.51
LAMBDA VALUE: 605. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.563 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_045_26AUG05 * BKG ELAPSED TIME: 60000.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	441.00	0.00	99.8	5.536E+00	7.009E-01	3.401E-02
U-234	4761.5	67.83	0.17	99.8	8.512E-01	2.408E-01	5.806E-02
U-235	4385.5	1.00	0.00	80.9	1.548E-02	3.104E-02	4.195E-02
U-236	4485.2	2.66	0.34	90.1	3.697E-02	4.890E-02	7.535E-02
U-238	4184.4	74.83	0.17	100.2	9.350E-01	2.551E-01	5.782E-02



Analyst

9.2.05

Date



Reviewer

9/2/05

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-UU\$16_UU.CNF;1

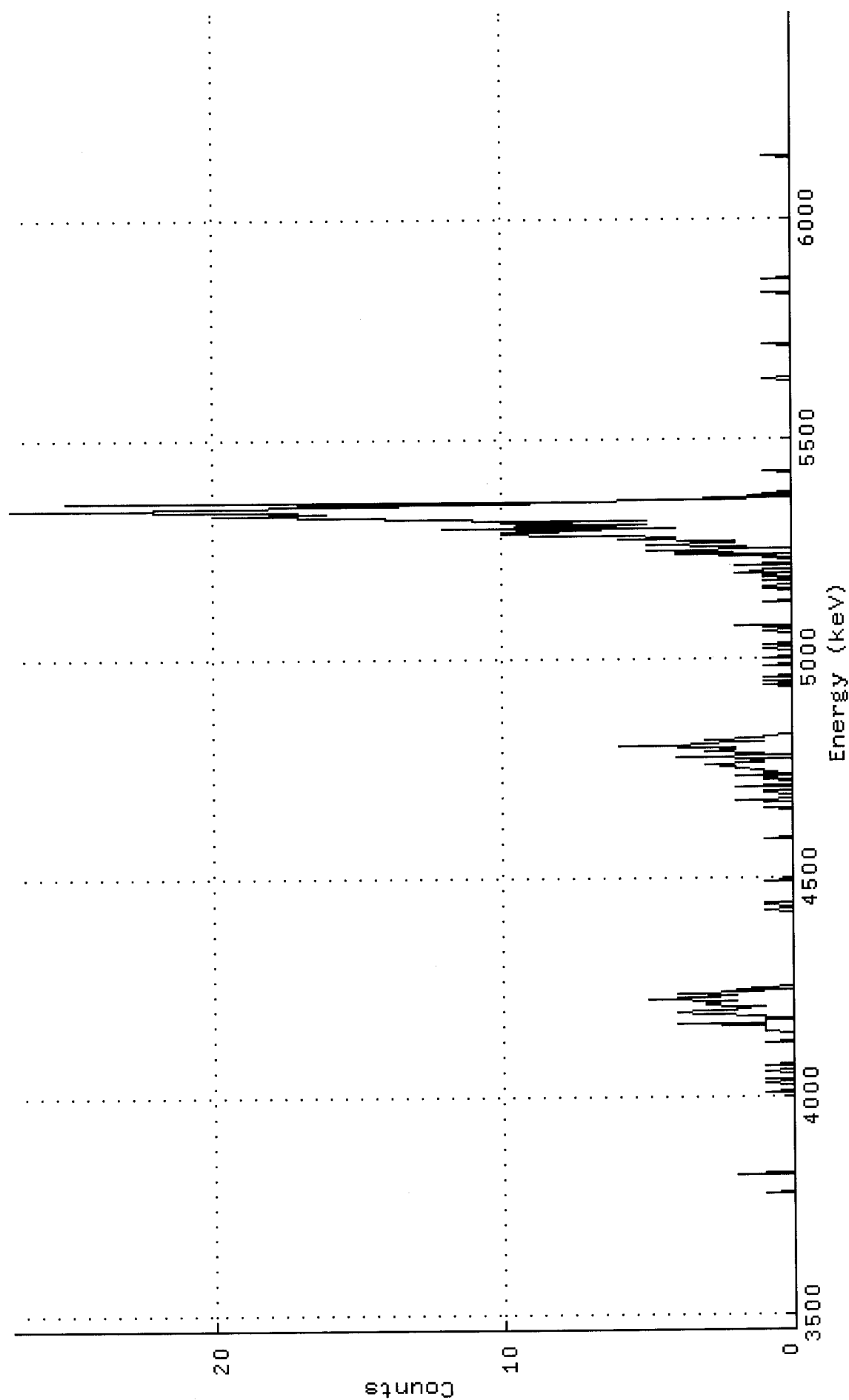
Title : 045

Sample Title: VPSCR081705SL13

Start Time: 2-SEP-2005 09:48: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45577E+03

Real Time : 0 02:50:00.20 Sample ID : 16 Energy Slope : 3.12631E+00

Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.82971E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$16_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
183:	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
197:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
225:	1	1	1	1	4	1	1	1	1	0	2	1	3	4	4
239:	3	2	2	1	2	3	3	3	2	5	3	3	2	4	0
253:	3	2	0	2	1	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
379:	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
393:	0	0	0	0	0	2	1	0	0	0	0	1	0	1	1
407:	0	0	2	0	0	0	0	1	0	1	0	2	0	0	2
421:	1	1	2	2	2	3	1	1	1	2	0	4	0	1	2
435:	1	3	3	2	2	6	4	3	2	1	3	1	0	0	0
449:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
491:	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
505:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
519:	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
533:	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
561:	1	0	1	0	0	0	0	1	0	0	1	1	0	1	4
575:	1	1	0	0	0	2	0	0	0	0	1	0	1	6	11
589:	0	4	4	5	0	3	2	5	2	3	2	6	6	5	4
603:	6	8	10	8	10	9	4	12	7	5	9	10	5	9	25
617:	11	17	14	20	16	17	17	27	22	22	14	18	9	0	0
631:	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
799:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:51:45.44

Detector ID: 45	Acquisition Start: 2-SEP-2005 09:48:52.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.20
Batch Id: 0508094A-UU	Sample Id: 16
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4189.22	75	0	78.11	237.92	176	90	7.35E-03	11.5	
2	0	4362.11	1	0	0.00	295.00	274	43	9.80E-05	100.0	
3	0	4456.50	3	0	59.01	326.33	319	29	2.94E-04	57.7	
4	0	4766.64	68	0	31.88	430.13	374	82	6.67E-03	12.1	
5	0	5311.42	441	0	41.51	615.75	560	76	4.32E-02	4.8	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:51:49.40

	Acquisition Start: 26-AUG-2005 12:02:09.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4136.22	1	0	3.13	220.50	176	90	1.67E-05	100.0	
2	0	4362.11	0	0	0.00	295.00	274	43	0.00E+00	0.0	
3	0	4476.54	2	0	62.53	333.00	319	29	3.33E-05	70.7	
4	0	4720.19	1	0	3.13	414.50	374	82	1.67E-05	100.0	
5	0	5258.42	0	0	0.00	597.50	560	76	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:51:49.68

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4189.22*	75	0	78.11	237.92	176	90	7.34E-03	11.6	
2	0	4362.11*	1	0	0.00	295.00	274	43	9.80E-05	100.0	
3	0	4456.50*	3	0	59.01	326.33	319	29	2.61E-04	65.7	
4	0	4766.64*	68	0	31.88	430.13	374	82	6.65E-03	12.2	
5	0	5311.42*	441	0	41.51	615.75	560	76	4.32E-02	4.8	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL13
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:48:52
 Sample ID : 16 Sample quantity : 1.0222 gram
 Sample type : UU Sample geometry :
 Detector name : 045 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.20 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4189.22*	75	78.11	237.92	176	90	23.2		U-238	0.942
0	4362.11*	1	0.00	295.00	274	43200	0.0		U-235	1.559E-02
0	4456.50*	3	59.01	326.33	319	29131	1.5		U-236	3.724E-02
0	4766.64*	68	31.88	430.13	374	82	24.3		U-234	0.857
0	5311.42*	441	41.51	615.75	560	76	9.5		U232	5.58

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 12:52:00

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-UU\$17_UU.CNF

*
BATCH ID: 0508094A-UU * SAMPLE ID: 17
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.025E+00 gram
SAMPLE TITLE: VPSCR081705SL14 * DETECTOR NUMBER: 046
ACQ DATE: 2-SEP-2005 09:49 * AVERAGE EFFICIENCY: 20.82%
ELAPSED LIVE TIME: 10200. * RECOVERY: 94.47%
TRACER ID: UU-10A * TRACER FWHM (kev): 62.92
LAMBDA VALUE: 606. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 12.588 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:29 * EFF CAL DATE: 25-AUG-2005 04:29
BKG FILENAME: B_046_26AUG05 * BKG ELAPSED TIME: 60000.

NUCLIDE ACTIVITY SUMMARY


NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	419.83	0.17	99.8	5.534E+00	7.105E-01	6.097E-02
U-234	4761.5	73.66	0.34	99.8	9.706E-01	2.674E-01	7.143E-02
U-235	4385.5	10.00	0.00	80.9	1.625E-01	1.055E-01	4.405E-02
U-236	4485.2	6.00	0.00	90.1	8.757E-02	7.263E-02	3.955E-02
U-238	4184.4	68.83	0.17	100.2	9.030E-01	2.548E-01	6.071E-02



Analyst

9.2.05

Date



Reviewer

9/2/05

Date

Spectrum : DKA100:[ALPHA,ALUSR.ARCHIVE.S]S_0508094A-UU\$17_UU.CNF;1

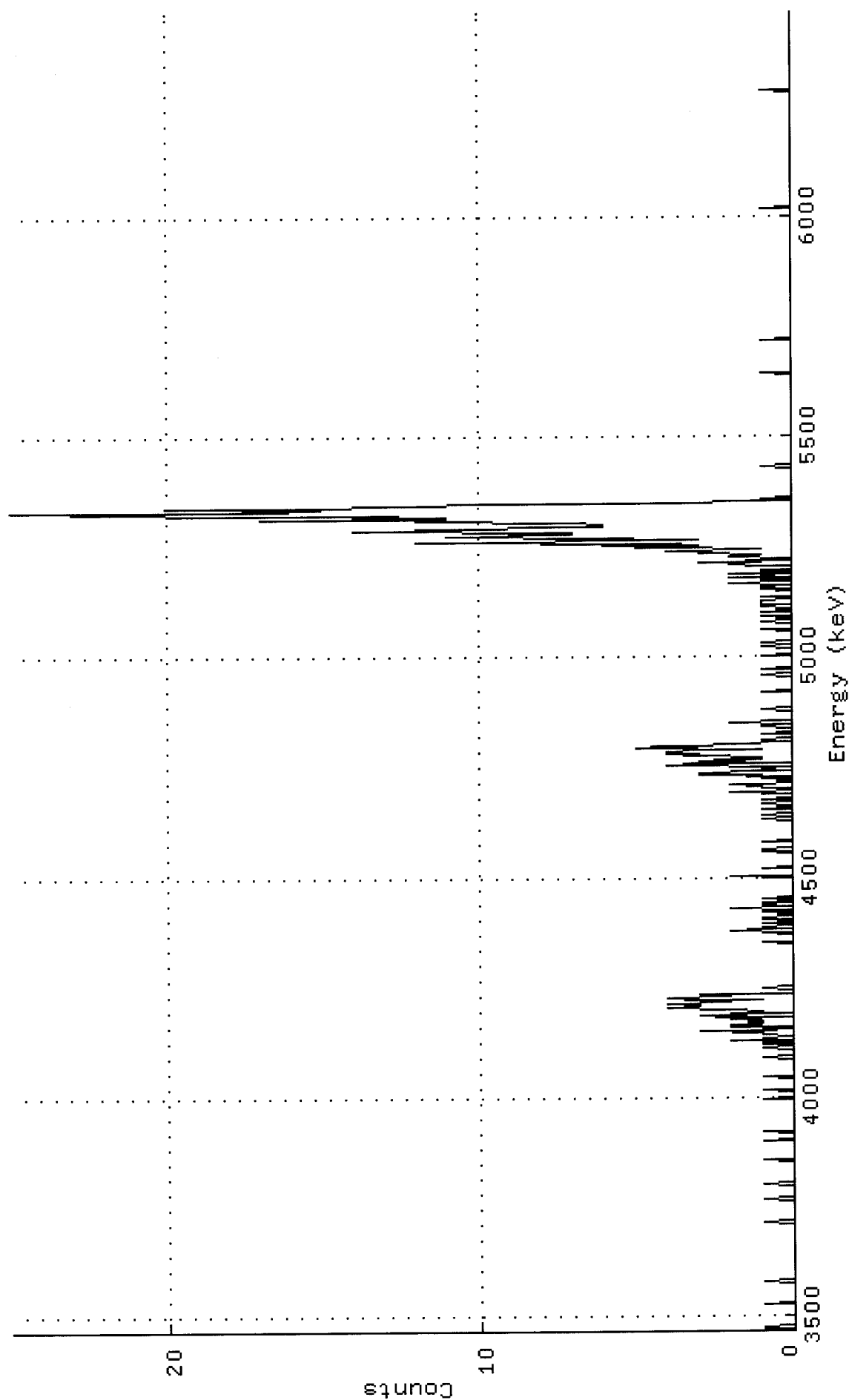
Title : 046

Sample Title: VPSCR081705SL14

Start Time: 2-SEP-2005 09:49: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45486E+03

Real Time : 0 02:50:00.10 Sample ID : 17 Energy Slope : 3.13726E+00

Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.96714E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-UU\$17_UU

Channel

1:	0	0	0	0	1	1	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	1	0	0	0	0	0	1	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
183:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	1	1	0	0	0	1	3
211:	0	1	0	1	0	0	2	0	1	0	2	3	0	2
225:	1	0	2	0	2	1	1	1	2	0	0	4	3	0
239:	1	2	4	4	3	4	3	3	1	3	4	2	0	0
253:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
295:	0	0	1	0	2	1	0	1	0	0	1	0	1	0
309:	1	0	0	0	1	0	0	2	0	0	1	0	0	0
323:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	2	0	0	0	0	0	0	1	0	0	0
351:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
365:	0	0	1	0	0	0	0	0	0	0	0	0	0	1
379:	0	0	0	0	0	1	0	0	1	0	0	0	1	0
393:	0	0	0	1	0	0	1	0	0	0	0	2	1	1
407:	0	1	1	2	1	0	0	1	0	0	3	1	3	3
421:	0	1	1	0	4	3	0	3	2	1	1	3	4	0
435:	4	3	1	5	4	3	2	0	1	1	0	0	0	0
449:	1	0	0	0	0	1	0	0	2	0	0	0	0	0
463:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
491:	0	0	0	1	0	0	0	0	1	0	0	1	0	0
505:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
519:	1	0	0	0	0	0	0	0	0	0	1	0	0	0
533:	0	0	1	0	0	0	1	0	0	0	1	0	0	1
547:	1	0	1	1	1	1	0	1	0	0	0	0	2	0
561:	0	1	0	0	2	1	0	3	2	1	0	2	1	1
575:	1	0	0	0	1	2	1	4	0	1	0	7	6	11
589:	3	3	4	1	4	6	3	4	12	12	3	7	11	17
603:	7	8	7	14	12	12	6	7	6	7	10	12	5	0
617:	11	14	19	21	25	17	15	20	16	12	10	5	0	0
631:	1	0	0	0	0	0	0	0	0	0	0	1	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:51:56.00

Detector ID: 46	Acquisition Start: 2-SEP-2005 09:49:09.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.10
Batch Id: 0508094A-UU	Sample Id: 17
Sample Type: UU	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4182.80	69	0	86.99	235.51	176	89	6.76E-03	12.0	
2	0	4384.67	10	0	4.61	302.10	274	42	9.80E-04	31.6	
3	0	4474.25	6	0	3.14	331.83	319	29	5.88E-04	40.8	
4	0	4757.00	74	0	73.78	426.46	374	81	7.25E-03	11.6	
5	0	5298.57	420	0	62.92	611.10	560	76	4.12E-02	4.9	

Background Counts Within Peak Regions Generated: 2-SEP-2005 12:51:57.92

	Acquisition Start: 26-AUG-2005 12:02:12.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.54	1	0	3.14	220.00	176	89	1.67E-05	100.0	
2	0	4361.72	0	0	0.00	294.50	274	42	0.00E+00	0.0	
3	0	4477.76	0	0	0.00	333.00	319	29	0.00E+00	0.0	
4	0	4719.97	2	0	72.16	414.00	374	81	3.33E-05	70.7	
5	0	5259.15	1	0	3.14	597.50	560	76	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 12:51:58.23

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4182.80*	69	0	86.99	235.51	176	89	6.75E-03	12.1	
2	0	4384.67*	10	0	4.61	302.10	274	42	9.80E-04	31.6	
3	0	4474.25*	6	0	3.14	331.83	319	29	5.88E-04	40.8	
4	0	4757.00*	74	0	73.78	426.46	374	81	7.22E-03	11.7	
5	0	5298.57*	420	0	62.92	611.10	560	76	4.12E-02	4.9	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL14
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 09:49:09
 Sample ID : 17 Sample quantity : 1.0246 gram
 Sample type : UU Sample geometry :
 Detector name : 046 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.10 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4182.80*	69	86.99	235.51	176	89	24.1		U-238	0.853
0	4384.67*	10	4.61	302.10	274	42	63.2		U-235	0.154
0	4474.25*	6	3.14	331.83	319	29	81.6		U-236	8.273E-02
0	4757.00*	74	73.78	426.46	374	81	23.4		U-234	0.917
0	5298.57*	420	62.92	611.10	560	76	9.8		U232	5.23

SECTION IX
ANALYTICAL DATA (ISOTOPIC THORIUM)

05-08094
ThISO
Run 1

Work Order	05-08094
Analysis Code	ThISO
Run	1
Date Received	8/19/2005
Lab Deadline	9/9/2005
Client	Missouri Dept. of Natural Resources
Project	B3Z02092
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EML Th-01 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	Th-229
Radiometric Sol#	Th-18a
Tracer Act (dpm/g)	22.482
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		08/22/05 00:00	1.0000E+00
02	MBL	BLANK		08/22/05 00:00	1.0000E+00
03	DUP	VPSCR081705SL01	42	08/17/05 10:02	9.9220E-01
04	DO	VPSCR081705SL01	42	08/17/05 10:02	9.8360E-01
05	TRG	VPSCR081705SL02	35	08/17/05 10:04	9.9440E-01
06	TRG	VPSCR081705SL03	45	08/17/05 10:08	1.0213E+00
07	TRG	VPSCR081705SL04	38	08/17/05 10:09	1.0194E+00
08	TRG	VPSCR081705SL05	41	08/17/05 10:11	1.0428E+00
09	TRG	VPSCR081705SL06	38	08/17/05 10:18	1.0074E+00
10	TRG	VPSCR081705SL07	41	08/17/05 10:20	1.0049E+00
11	TRG	VPSCR081705SL08	47	08/17/05 10:21	1.0073E+00
12	TRG	VPSCR081705SL09	37	08/17/05 10:23	1.0569E+00
13	TRG	VPSCR081705SL10	30	08/17/05 10:25	9.9810E-01
14	TRG	VPSCR081705SL11	42	08/17/05 10:27	9.9010E-01
15	TRG	VPSCR081705SL12	37	08/17/05 10:30	9.9610E-01
16	TRG	VPSCR081705SL13	46	08/17/05 10:32	1.0382E+00
17	TRG	VPSCR081705SL14	41	08/17/05 10:44	1.0774E+00

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS	0.4646	10.4										
02	MBL	0.4586	10.3										
03	DUP	0.4562	10.3										
04	DO	0.4564	10.3										
05	TRG	0.4552	10.2										
06	TRG	0.4565	10.3										
07	TRG	0.4560	10.3										
08	TRG	0.4536	10.2										
09	TRG	0.4543	10.2										
10	TRG	0.4543	10.2										
11	TRG	0.4517	10.2										
12	TRG	0.4538	10.2										
13	TRG	0.4530	10.2										
14	TRG	0.4520	10.2										
15	TRG	0.4534	10.2										
16	TRG	0.4536	10.2										
17	TRG	0.4525	10.2										

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS			08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
02	MBL			08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
03	DUP			08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
04	DO	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
05	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
06	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
07	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
08	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
09	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
10	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
11	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
12	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
13	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
14	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
15	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
16	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		
17	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:43	JBARNARD	09/02/05 06:39	BNEWTON		

Missouri Dept. of Natural Resources		Eberline Services Work Order	05-08094	THISO	Analysis Code	1	Run
Client							

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-228	LCS	LCS	pCi/g	5.06E+00	9.26E-01	9.85E-02	4.74E+00	106.76	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	-2.14E-02	1.95E-02	1.76E-01					OK	OK
03	TH-228	DUP	VPSCR081705SL01	pCi/g	4.91E-01	1.86E-01	1.02E-01				OK	OK	
04	TH-228	DO	VPSCR081705SL01	pCi/g	5.86E-01	2.24E-01	1.01E-01					OK	
05	TH-228	TRG	VPSCR081705SL02	pCi/g	5.43E-01	2.02E-01	1.13E-01					OK	
06	TH-228	TRG	VPSCR081705SL03	pCi/g	2.85E-01	1.43E-01	1.10E-01					OK	
07	TH-228	TRG	VPSCR081705SL04	pCi/g	7.37E-01	2.86E-01	1.27E-01					OK	
08	TH-228	TRG	VPSCR081705SL05	pCi/g	4.74E-01	1.92E-01	1.24E-01					OK	
09	TH-228	TRG	VPSCR081705SL06	pCi/g	1.27E+00	3.92E-01	9.23E-02					OK	
10	TH-228	TRG	VPSCR081705SL07	pCi/g	8.23E-01	2.54E-01	9.09E-02					OK	
11	TH-228	TRG	VPSCR081705SL08	pCi/g	7.93E-01	2.44E-01	1.03E-01					OK	
12	TH-228	TRG	VPSCR081705SL09	pCi/g	1.07E+00	3.16E-01	9.30E-02					OK	
13	TH-228	TRG	VPSCR081705SL10	pCi/g	1.06E+00	3.10E-01	1.39E-01					OK	
14	TH-228	TRG	VPSCR081705SL11	pCi/g	3.79E-01	1.79E-01	1.15E-01					OK	
15	TH-228	TRG	VPSCR081705SL12	pCi/g	4.23E-01	1.85E-01	1.59E-01					OK	
16	TH-228	TRG	VPSCR081705SL13	pCi/g	8.59E-01	3.02E-01	1.70E-01					OK	
17	TH-228	TRG	VPSCR081705SL14	pCi/g	1.05E+00	2.87E-01	1.22E-01					OK	



Run

Analysis Code

Eberline Services Work Order

Client

1

THISO

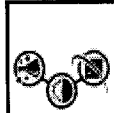
05-08094

Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
01	TH-228	LCS	08/22/05 00:00	1.00E+00	101.89				9/2/2005 6:39	
02	TH-228	MBL	08/22/05 00:00	1.00E+00	51.90				9/2/2005 6:39	
03	TH-228	DUP	08/17/05 10:02	9.92E-01	93.73				9/2/2005 6:39	
04	TH-228	DO	08/17/05 10:02	9.84E-01	76.09				9/2/2005 6:39	
05	TH-228	TRG	08/17/05 10:04	9.94E-01	87.84				9/2/2005 6:39	
06	TH-228	TRG	08/17/05 10:08	1.02E+00	85.23				9/2/2005 6:39	
07	TH-228	TRG	08/17/05 10:09	1.02E+00	66.92				9/2/2005 6:39	
08	TH-228	TRG	08/17/05 10:11	1.04E+00	81.64				9/2/2005 6:39	
09	TH-228	TRG	08/17/05 10:18	1.01E+00	63.11				9/2/2005 6:39	
10	TH-228	TRG	08/17/05 10:20	1.00E+00	87.62				9/2/2005 6:39	
11	TH-228	TRG	08/17/05 10:21	1.01E+00	93.63				9/2/2005 6:39	
12	TH-228	TRG	08/17/05 10:23	1.06E+00	76.45				9/2/2005 6:39	
13	TH-228	TRG	08/17/05 10:25	9.98E-01	86.34				9/2/2005 6:39	
14	TH-228	TRG	08/17/05 10:27	9.90E-01	71.31				9/2/2005 6:39	
15	TH-228	TRG	08/17/05 10:30	9.96E-01	83.30				9/2/2005 6:39	
16	TH-228	TRG	08/17/05 10:32	1.04E+00	66.57				9/2/2005 6:39	
17	TH-228	TRG	08/17/05 10:44	1.08E+00	102.65				9/2/2005 6:39	

	Client	Missouri Dept. of Natural Resources	
	Eberline Services Work Order	05-08094	
	Analysis Code	THISO	
	Run	1	

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-228	LCS	09/02/05 08:08		A_Spec	1	170.1	4.18 E+02	8.00 E-03	21.5
02	TH-228	MBL	09/02/05 08:08		A_Spec	2	170.02	-8.50 E-01	5.00 E-03	20.3
03	TH-228	DUP	09/02/05 08:09		A_Spec	3	170.05	3.50 E+01	6.00 E-03	20.6
04	TH-228	DO	09/02/05 08:09		A_Spec	5	170.08	3.45 E+01	3.00 E-03	21.2
05	TH-228	TRG	09/02/05 08:09		A_Spec	6	170.13	3.68 E+01	7.00 E-03	20.9
06	TH-228	TRG	09/02/05 08:10		A_Spec	7	170.1	1.90 E+01	6.00 E-03	20.6
07	TH-228	TRG	09/02/05 08:10		A_Spec	8	170.08	3.45 E+01	3.00 E-03	18.5
08	TH-228	TRG	09/02/05 08:10		A_Spec	9	170.05	3.06 E+01	8.00 E-03	20.5
09	TH-228	TRG	09/02/05 08:10		A_Spec	10	170.12	6.28 E+01	1.00 E-03	20.9
10	TH-228	TRG	09/02/05 08:11		A_Spec	11	170.08	5.83 E+01	4.00 E-03	21.7
11	TH-228	TRG	09/02/05 08:11		A_Spec	12	170.05	5.88 E+01	7.00 E-03	21.2
12	TH-228	TRG	09/02/05 08:11		A_Spec	13	170	6.85 E+01	3.00 E-03	21.3
13	TH-228	TRG	09/02/05 08:12		A_Spec	14	170.05	7.00 E+01	1.20 E-02	20.6
14	TH-228	TRG	09/02/05 08:12		A_Spec	15	170	2.13 E+01	4.00 E-03	21.5
15	TH-228	TRG	09/02/05 08:12		A_Spec	16	170.08	2.73 E+01	1.60 E-02	20.9
16	TH-228	TRG	09/02/05 08:50		A_Spec	17	170.13	4.51 E+01	1.10 E-02	20.5
17	TH-228	TRG	09/02/05 08:50		A_Spec	18	170.08	8.36 E+01	1.40 E-02	19.4



Run

1

THISO

Analysis Code

05-08094

Eberline Services Work Order

Missouri Dept. of Natural Resources

Client

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-230	LCS	LCS	pCi/g	5.72E+00	1.03E+00	7.31E-02	5.33E+00	107.35	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	2.09E-01	1.57E-01	1.65E-01					OK	OK
03	TH-230	DUP	VPSCR081705SL01	pCi/g	1.40E+00	3.59E-01	1.21E-01				OK	OK	
04	TH-230	DO	VPSCR081705SL01	pCi/g	1.39E+00	3.85E-01	1.17E-01					OK	
05	TH-230	TRG	VPSCR081705SL02	pCi/g	2.41E+00	5.41E-01	1.02E-01					OK	
06	TH-230	TRG	VPSCR081705SL03	pCi/g	1.46E+00	3.79E-01	6.85E-02					OK	
07	TH-230	TRG	VPSCR081705SL04	pCi/g	1.40E+00	4.27E-01	1.14E-01					OK	
08	TH-230	TRG	VPSCR081705SL05	pCi/g	1.86E+00	4.55E-01	7.04E-02					OK	
09	TH-230	TRG	VPSCR081705SL06	pCi/g	3.75E+00	8.59E-01	1.62E-01					OK	
10	TH-230	TRG	VPSCR081705SL07	pCi/g	1.33E+00	3.46E-01	9.10E-02					OK	
11	TH-230	TRG	VPSCR081705SL08	pCi/g	2.93E+00	6.10E-01	8.69E-02					OK	
12	TH-230	TRG	VPSCR081705SL09	pCi/g	1.98E+00	4.82E-01	1.01E-01					OK	
13	TH-230	TRG	VPSCR081705SL10	pCi/g	3.68E+00	7.62E-01	8.09E-02					OK	
14	TH-230	TRG	VPSCR081705SL11	pCi/g	1.32E+00	3.83E-01	1.78E-01					OK	
15	TH-230	TRG	VPSCR081705SL12	pCi/g	1.18E+00	3.32E-01	1.13E-01					OK	
16	TH-230	TRG	VPSCR081705SL13	pCi/g	5.41E+00	1.14E+00	1.23E-01					OK	
17	TH-230	TRG	VPSCR081705SL14	pCi/g	4.41E+00	8.43E-01	6.71E-02					OK	



1

THISO

05-08094

Missouri Dept. of Natural Resources

Run

Analysis Code

Eberline Services Work Order

Client

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
01	TH-230	LCS	08/22/05 00:00	1.00E+00	101.89				9/2/2005 6:39	
02	TH-230	MBL	08/22/05 00:00	1.00E+00	51.90				9/2/2005 6:39	
03	TH-230	DUP	08/17/05 10:02	9.92E-01	93.73				9/2/2005 6:39	
04	TH-230	DO	08/17/05 10:02	9.84E-01	76.09				9/2/2005 6:39	
05	TH-230	TRG	08/17/05 10:04	9.94E-01	87.84				9/2/2005 6:39	
06	TH-230	TRG	08/17/05 10:08	1.02E+00	85.23				9/2/2005 6:39	
07	TH-230	TRG	08/17/05 10:09	1.02E+00	66.92				9/2/2005 6:39	
08	TH-230	TRG	08/17/05 10:11	1.04E+00	81.64				9/2/2005 6:39	
09	TH-230	TRG	08/17/05 10:18	1.01E+00	63.11				9/2/2005 6:39	
10	TH-230	TRG	08/17/05 10:20	1.00E+00	87.62				9/2/2005 6:39	
11	TH-230	TRG	08/17/05 10:21	1.01E+00	93.63				9/2/2005 6:39	
12	TH-230	TRG	08/17/05 10:23	1.06E+00	76.45				9/2/2005 6:39	
13	TH-230	TRG	08/17/05 10:25	9.98E-01	86.34				9/2/2005 6:39	
14	TH-230	TRG	08/17/05 10:27	9.90E-01	71.31				9/2/2005 6:39	
15	TH-230	TRG	08/17/05 10:30	9.96E-01	83.30				9/2/2005 6:39	
16	TH-230	TRG	08/17/05 10:32	1.04E+00	66.57				9/2/2005 6:39	
17	TH-230	TRG	08/17/05 10:44	1.08E+00	102.65				9/2/2005 6:39	

	Client	Missouri Dept. of Natural Resources
	Eberline Services Work Order	05-08094
	Analysis Code	THISO
Run	1	

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-230	LCS	09/02/05 08:08		A_Spec	1	170.1	4.72 E+02	3.00 E-03	21.5
02	TH-230	MBL	09/02/05 08:08		A_Spec	2	170.02	8.32 E+00	4.00 E-03	20.3
03	TH-230	DUP	09/02/05 08:09		A_Spec	3	170.05	1.01 E+02	1.00 E-02	20.6
04	TH-230	DO	09/02/05 08:09		A_Spec	5	170.08	8.32 E+01	5.00 E-03	21.2
05	TH-230	TRG	09/02/05 08:09		A_Spec	6	170.13	1.66 E+02	5.00 E-03	20.9
06	TH-230	TRG	09/02/05 08:10		A_Spec	7	170.1	9.88 E+01	1.00 E-03	20.6
07	TH-230	TRG	09/02/05 08:10		A_Spec	8	170.08	6.67 E+01	2.00 E-03	18.5
08	TH-230	TRG	09/02/05 08:10		A_Spec	9	170.05	1.22 E+02	1.00 E-03	20.5
09	TH-230	TRG	09/02/05 08:10		A_Spec	10	170.12	1.88 E+02	8.00 E-03	20.9
10	TH-230	TRG	09/02/05 08:11		A_Spec	11	170.08	9.53 E+01	4.00 E-03	21.7
11	TH-230	TRG	09/02/05 08:11		A_Spec	12	170.05	2.20 E+02	4.00 E-03	21.2
12	TH-230	TRG	09/02/05 08:11		A_Spec	13	170	1.28 E+02	4.00 E-03	21.3
13	TH-230	TRG	09/02/05 08:12		A_Spec	14	170.05	2.47 E+02	2.00 E-03	20.6
14	TH-230	TRG	09/02/05 08:12		A_Spec	15	170	7.55 E+01	1.50 E-02	21.5
15	TH-230	TRG	09/02/05 08:12		A_Spec	16	170.08	7.70 E+01	6.00 E-03	20.9
16	TH-230	TRG	09/02/05 08:50		A_Spec	17	170.13	2.88 E+02	4.00 E-03	20.5
17	TH-230	TRG	09/02/05 08:50		A_Spec	18	170.08	3.57 E+02	2.00 E-03	19.4

Missouri Dept. of Natural Resources		Eberline Services Work Order	05-08094	Analysis Code	THISO	Run	1
Client							

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-232	LCS	LCS	pCi/g	4.95E+00	9.08E-01	9.42E-02	4.74E+00	104.40	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	7.91E-02	1.03E-01	1.76E-01					OK	OK
03	TH-232	DUP	VPSCR081705SL01	pCi/g	7.09E-01	2.29E-01	9.04E-02				INV	OK	
04	TH-232	DO	VPSCR081705SL01	pCi/g	8.85E-01	2.84E-01	4.52E-02					OK	
05	TH-232	TRG	VPSCR081705SL02	pCi/g	4.15E-01	1.70E-01	7.86E-02					OK	
06	TH-232	TRG	VPSCR081705SL03	pCi/g	3.77E-01	1.63E-01	8.91E-02					OK	
07	TH-232	TRG	VPSCR081705SL04	pCi/g	7.08E-01	2.76E-01	1.14E-01					OK	
08	TH-232	TRG	VPSCR081705SL05	pCi/g	6.05E-01	2.17E-01	7.03E-02					OK	
09	TH-232	TRG	VPSCR081705SL06	pCi/g	1.30E+00	3.94E-01	5.40E-02					OK	
10	TH-232	TRG	VPSCR081705SL07	pCi/g	7.59E-01	2.39E-01	7.52E-02					OK	
11	TH-232	TRG	VPSCR081705SL08	pCi/g	8.46E-01	2.51E-01	6.13E-02					OK	
12	TH-232	TRG	VPSCR081705SL09	pCi/g	7.39E-01	2.49E-01	1.14E-01					OK	
13	TH-232	TRG	VPSCR081705SL10	pCi/g	1.28E+00	3.46E-01	6.90E-02					OK	
14	TH-232	TRG	VPSCR081705SL11	pCi/g	5.10E-01	2.11E-01	1.22E-01					OK	
15	TH-232	TRG	VPSCR081705SL12	pCi/g	5.59E-01	2.07E-01	8.27E-02					OK	
16	TH-232	TRG	VPSCR081705SL13	pCi/g	1.12E+00	3.52E-01	1.39E-01					OK	
17	TH-232	TRG	VPSCR081705SL14	pCi/g	1.01E+00	2.76E-01	3.35E-02					OK	

		Run	1
Analysis Code		THISO	
Eberline Services Work Order		05-08094	
Client		Missouri Dept. of Natural Resources	

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep to Date/Time	Sep to Date/Time
01	TH-232	LCS	08/22/05 00:00	1.00E+00	101.89				9/2/2005 6:39	
02	TH-232	MBL	08/22/05 00:00	1.00E+00	51.90				9/2/2005 6:39	
03	TH-232	DUP	08/17/05 10:02	9.92E-01	93.73				9/2/2005 6:39	
04	TH-232	DO	08/17/05 10:02	9.84E-01	76.09				9/2/2005 6:39	
05	TH-232	TRG	08/17/05 10:04	9.94E-01	87.84				9/2/2005 6:39	
06	TH-232	TRG	08/17/05 10:08	1.02E+00	85.23				9/2/2005 6:39	
07	TH-232	TRG	08/17/05 10:09	1.02E+00	66.92				9/2/2005 6:39	
08	TH-232	TRG	08/17/05 10:11	1.04E+00	81.64				9/2/2005 6:39	
09	TH-232	TRG	08/17/05 10:18	1.01E+00	63.11				9/2/2005 6:39	
10	TH-232	TRG	08/17/05 10:20	1.00E+00	87.62				9/2/2005 6:39	
11	TH-232	TRG	08/17/05 10:21	1.01E+00	93.63				9/2/2005 6:39	
12	TH-232	TRG	08/17/05 10:23	1.06E+00	76.45				9/2/2005 6:39	
13	TH-232	TRG	08/17/05 10:25	9.98E-01	86.34				9/2/2005 6:39	
14	TH-232	TRG	08/17/05 10:27	9.90E-01	71.31				9/2/2005 6:39	
15	TH-232	TRG	08/17/05 10:30	9.96E-01	83.30				9/2/2005 6:39	
16	TH-232	TRG	08/17/05 10:32	1.04E+00	66.57				9/2/2005 6:39	
17	TH-232	TRG	08/17/05 10:44	1.08E+00	102.65				9/2/2005 6:39	

		Client	Missouri Dept. of Natural Resources
Run	1	Analysis Code	THISO
		Eberline Services Work Order	05-08094

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-232	LCS	09/02/05 08:08		A_Spec	1	170.1	4.09 E+02	7.00 E-03	21.5
02	TH-232	MBL	09/02/05 08:08		A_Spec	2	170.02	3.15 E+00	5.00 E-03	20.3
03	TH-232	DUP	09/02/05 08:09		A_Spec	3	170.05	5.13 E+01	4.00 E-03	20.6
04	TH-232	DO	09/02/05 08:09		A_Spec	5	170.08	5.30 E+01	0.00 E+00	21.2
05	TH-232	TRG	09/02/05 08:09		A_Spec	6	170.13	2.87 E+01	2.00 E-03	20.9
06	TH-232	TRG	09/02/05 08:10		A_Spec	7	170.1	2.55 E+01	3.00 E-03	20.6
07	TH-232	TRG	09/02/05 08:10		A_Spec	8	170.08	3.37 E+01	2.00 E-03	18.5
08	TH-232	TRG	09/02/05 08:10		A_Spec	9	170.05	3.98 E+01	1.00 E-03	20.5
09	TH-232	TRG	09/02/05 08:10		A_Spec	10	170.12	6.50 E+01	0.00 E+00	20.9
10	TH-232	TRG	09/02/05 08:11		A_Spec	11	170.08	5.47 E+01	2.00 E-03	21.7
11	TH-232	TRG	09/02/05 08:11		A_Spec	12	170.05	6.38 E+01	1.00 E-03	21.2
12	TH-232	TRG	09/02/05 08:11		A_Spec	13	170	4.80 E+01	6.00 E-03	21.3
13	TH-232	TRG	09/02/05 08:12		A_Spec	14	170.05	8.58 E+01	1.00 E-03	20.6
14	TH-232	TRG	09/02/05 08:12		A_Spec	15	170	2.92 E+01	5.00 E-03	21.5
15	TH-232	TRG	09/02/05 08:12		A_Spec	16	170.08	3.67 E+01	2.00 E-03	20.9
16	TH-232	TRG	09/02/05 08:50		A_Spec	17	170.13	6.00 E+01	6.00 E-03	20.5
17	TH-232	TRG	09/02/05 08:50		A_Spec	18	170.08	8.20 E+01	0.00 E+00	19.4

[illegible]

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Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
05-08094	1	THISO	grams	9/9/2005	JBARNARD

Lab Fraction	Missouri Dept. of Natural Resources Client ID	Sample Type	Muffle Data		Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist	Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00					
02	BLANK	MBL					1.0000E+00	1.0000E+00					
03	VPSCR081705SL01	DUP					9.9220E-01	9.9220E-01					
04	VPSCR081705SL01	DO					9.8360E-01	9.8360E-01					
05	VPSCR081705SL02	TRG					9.9440E-01	9.9440E-01					
06	VPSCR081705SL03	TRG					1.0213E+00	1.0213E+00					
07	VPSCR081705SL04	TRG					1.0194E+00	1.0194E+00					
08	VPSCR081705SL05	TRG					1.0428E+00	1.0428E+00					
09	VPSCR081705SL06	TRG					1.0074E+00	1.0074E+00					
10	VPSCR081705SL07	TRG					1.0049E+00	1.0049E+00					
11	VPSCR081705SL08	TRG					1.0073E+00	1.0073E+00					
12	VPSCR081705SL09	TRG					1.0569E+00	1.0569E+00					
13	VPSCR081705SL10	TRG					9.9810E-01	9.9810E-01					
14	VPSCR081705SL11	TRG					9.9010E-01	9.9010E-01					
15	VPSCR081705SL12	TRG					9.9610E-01	9.9610E-01					
16	VPSCR081705SL13	TRG					1.0382E+00	1.0382E+00					
17	VPSCR081705SL14	TRG					1.0774E+00	1.0774E+00					

0.9922 g
0.9036 g
0.9944 g
1.0213 g
1.0194 g
1.0428 g
1.0074 g
1.0049 g
1.0073 g
1.0569 g
0.9981 g
0.9901 g
0.9961 g
1.0382 g
1.0774 g

Comments

Technician: JBarnard Date: 8/23/05

Rough Sample Preparation
 Log Book

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
05-08094	9/9/2005	8/21/2005	8/22/2005	8/23/2005	KSALLINGS

Eberline Fraction	Missouri Dept. of Natural Resources Client ID	Tare (g)		Gross (g)		Net (g)		Percent		Gamma		Special Info
		Pan Wt		Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	
04	VPSCR081705SL01	14.0000		427.3600	359.7600	413.3600	345.7600	16.35%	83.65%			
05	VPSCR081705SL02	13.8700		408.6400	338.6500	394.7700	324.7800	17.73%	82.27%			
06	VPSCR081705SL03	13.7500		484.5800	425.7200	470.8300	411.9700	12.50%	87.50%			
07	VPSCR081705SL04	13.9900		464.1600	401.9900	450.1700	388.0000	13.81%	86.19%			
08	VPSCR081705SL05	13.9400		567.4800	495.5300	553.5400	481.5900	13.00%	87.00%			
09	VPSCR081705SL06	13.9100		501.1000	396.9800	487.1900	383.0700	21.37%	78.63%			
10	VPSCR081705SL07	14.0200		471.6000	374.1500	457.5800	360.1300	21.30%	78.70%			
11	VPSCR081705SL08	14.0000		497.3700	396.4800	483.3700	382.4800	20.87%	79.13%			
12	VPSCR081705SL09	13.9700		501.9700	413.2200	488.0000	399.2500	18.19%	81.81%			
13	VPSCR081705SL10	14.0200		477.0700	345.6500	463.0500	331.6300	28.38%	71.62%			
14	VPSCR081705SL11	13.9500		511.8900	427.7900	497.9400	413.8400	16.89%	83.11%			
15	VPSCR081705SL12	13.8900		464.5200	384.1100	450.6300	370.2200	17.84%	82.16%			
16	VPSCR081705SL13	13.8500		461.6300	353.8000	447.7800	339.9500	24.08%	75.92%			
17	VPSCR081705SL14	13.9500		458.1300	364.2400	444.1800	350.2900	21.14%	78.86%			

Comments	
Special Codes	H: Hot, O: Organic Hazard, P: PCB Hazard, R: Rush, T: Other (see comments)

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:11:15

Spectral File: ND_AMS_ARCHIVE_C:C_0508094A-TH\$01_TH.CNF

*
BATCH ID: 0508094A-TH * SAMPLE ID: 01
SAMPLE DATE: 2-SEP-2005 00:00 * ALIQUOT: 1.000E+00 gram
SAMPLE TITLE: SPIKE * DETECTOR NUMBER: 001
ACQ DATE: 2-SEP-2005 08:08 * AVERAGE EFFICIENCY: 21.47%
ELAPSED LIVE TIME: 10206. * RECOVERY: 101.89%
TRACER ID: TH-18A * TRACER FWHM (kev): 110.41
LAMBDA VALUE: 465. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.445 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_001_26AUG05 * BKG ELAPSED TIME: 60005.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	4.64	1.36	97.5	5.760E-02	6.262E-02	1.010E-01
TH-228	5400.0	417.64	1.36	99.9	5.060E+00	9.256E-01	9.852E-02
TH229	4872.0	386.83	0.17	99.5	4.705E+00	6.488E-01	5.629E-02
TH-230	4672.0	471.49	0.51	99.8	5.717E+00	1.028E+00	7.314E-02
TH-232	3997.0	408.81	1.19	100.0	4.948E+00	9.078E-01	9.422E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst Jay Rice

Date 9/2/05

Reviewer Alan Fitzgerald

Date 9/2/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.C]C_0508094A-TH\$01_TH.CNF;1

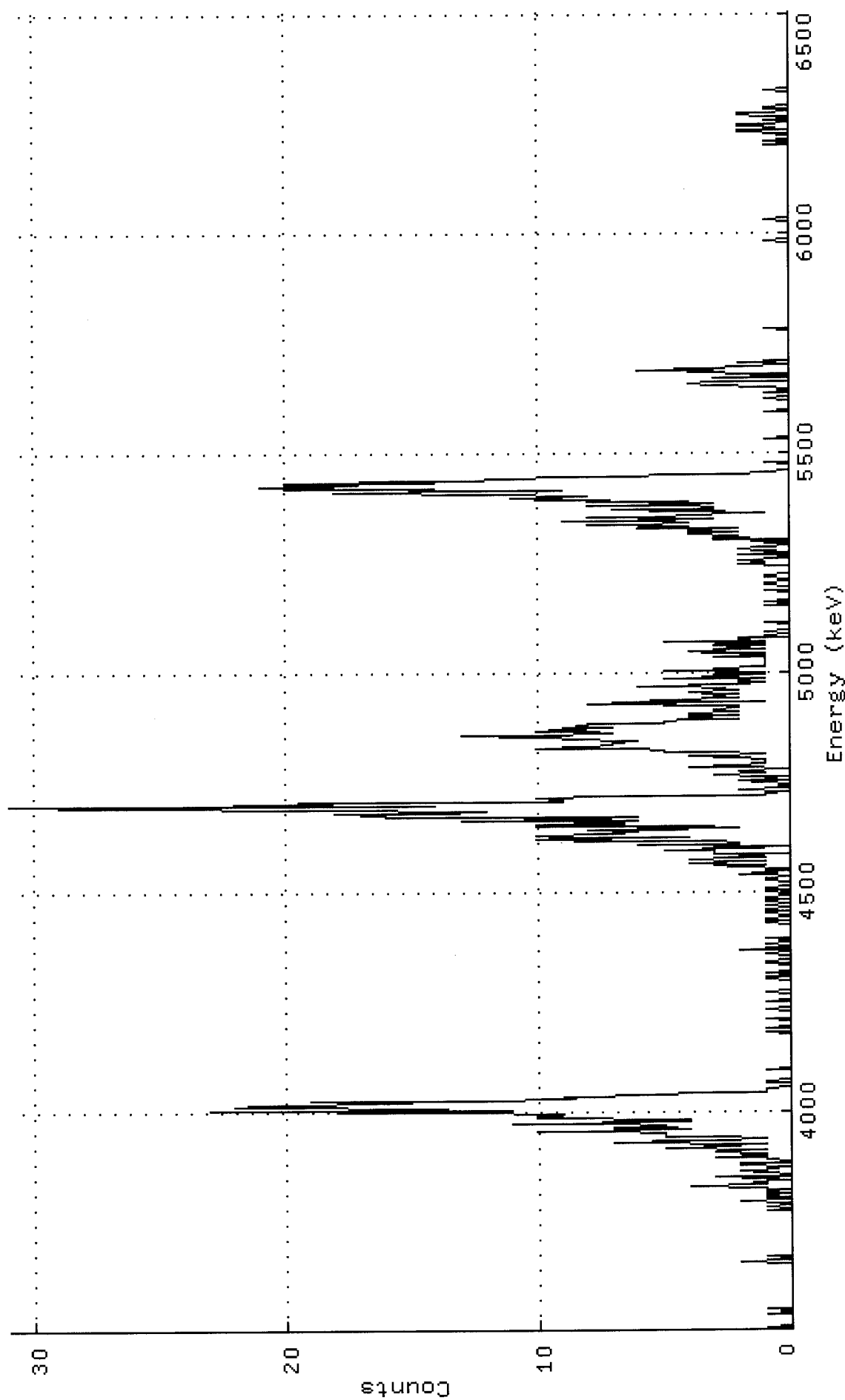
Title : 001

Sample Title: SPIKE

Start Time: 2-SEP-2005 08:08: Sample Time: 2-SEP-2005 00:00: Energy Offset: 3.49319E+03

Real Time : 0 02:50:06.00 Sample ID : 01 Energy Slope : 3.06351E+00

Live Time : 0 02:50:06.00 Sample Type: TH Energy Quad : -1.23267E-04



Channel Contents for ND_AMS_ARCHIVE_C:C_0508094A-TH\$01_TH

Channel

1:	10206	10206	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
15:	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	1	1	0	1	1	1	4	1	0
99:	0	2	0	1	0	0	1	0	1	1	2	1	1	1	0	0	5
113:	2	1	1	0	1	3	0	0	1	2	1	3	1	1	1	5	4
127:	2	2	0	0	1	1	3	1	3	5	5	5	7	10	13	23	1
141:	2	4	1	7	4	3	1	3	5	8	10	10	9	13	4	1	0
155:	5	7	5	7	11	4	19	12	9	8	9	5	4	0	0	0	0
169:	11	16	19	22	21	15	1	1	0	0	0	0	0	0	0	0	0
183:	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
225:	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
267:	0	1	0	1	0	0	1	0	0	0	2	0	0	0	0	1	0
281:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
309:	0	1	1	0	1	0	0	0	1	0	1	1	0	1	1	1	0
323:	1	0	0	1	0	1	1	0	0	0	1	2	1	0	3	3	7
337:	0	0	0	0	0	1	2	4	2	1	2	4	0	3	10	16	10
351:	0	2	3	1	4	2	3	7	10	6	13	8	9	10	6	16	10
365:	3	5	2	0	6	2	2	3	7	10	4	9	8	9	9	10	10
379:	7	6	8	6	2	10	27	31	14	22	17	9	9	9	9	10	10
393:	16	18	14	12	19	18	0	1	0	0	0	1	1	2	0	0	0
407:	7	1	0	3	1	1	2	0	2	4	2	1	1	1	7	7	7
421:	1	0	1	4	3	1	3	5	5	6	10	8	7	9	9	8	8
435:	1	1	2	8	10	13	10	7	8	10	9	3	2	2	2	2	3
449:	7	6	7	4	2	4	2	4	4	2	3	4	2	2	5	2	2
463:	8	5	5	7	4	3	2	3	2	3	3	1	1	1	3	4	0
477:	2	8	1	1	2	2	1	5	2	3	3	1	1	1	3	4	0
491:	4	6	2	1	1	1	1	1	1	3	1	1	1	1	3	4	0
505:	3	1	1	1	3	1	5	1	2	2	0	0	0	0	0	0	0
519:	1	3	2	1	0	0	0	1	0	0	0	1	0	0	0	0	0
533:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0
561:	0	0	0	0	1	0	0	0	0	0	0	0	2	1	1	1	1
575:	0	1	1	1	0	0	0	0	0	0	0	1	1	0	6	4	3
589:	2	0	1	0	0	2	0	1	1	2	2	4	4	7	7	12	12
603:	0	0	3	0	3	2	2	4	4	2	1	4	4	2	2	1	0
617:	8	6	4	5	9	3	8	5	4	2	8	12	11	18	12	1	0
631:	3	4	8	3	8	4	10	9	11	8	12	3	3	2	0	0	0
645:	9	19	21	18	20	14	20	14	10	12	8	0	0	0	0	0	0
659:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0
715:	1	0	0	0	0	1	0	0	0	0	3	3	2	4	2	0	0
729:	0	0	0	3	0	0	1	4	3	0	0	0	0	0	0	0	0
743:	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
925:	1	0	2	2	0	1	1	2	2	1	0	0	0	1	0	0	0
939:	0	1	2	2	1	0	1	0	1	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:11:11.06

Detector ID: 1	Acquisition Start: 2-SEP-2005 08:08:32.01
Live Time: 0 02:50:06.00	Real Time: 0 02:50:06.00
Batch Id: 0508094A-TH	Sample Id: 01
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3983.93	410	0	29.21	161.24	101	100	4.02E-02	4.9	
2	0	4660.49	472	0	31.01	387.06	308	102	4.62E-02	4.6	
3	0	4899.10	387	0	110.41	467.73	409	128	3.79E-02	5.1	
4	0	5388.78	419	0	47.84	634.99	553	104	4.11E-02	4.9	
5	0	5816.34	6	0	4.50	783.00	743	123	5.88E-04	40.8	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:11:13.62

	Acquisition Start: 26-AUG-2005 13:00:10.01
Live Time: 0 16:40:05.00	Real Time: 0 16:40:05.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3951.45	7	0	0.00	150.50	101	100	1.17E-04	37.8	
2	0	4575.61	3	0	143.99	358.50	308	102	5.00E-05	57.7	
3	0	4913.18	1	0	0.00	472.50	409	128	1.67E-05	100.0	
4	0	5300.04	8	0	235.89	604.50	553	104	1.33E-04	35.4	
5	0	5876.57	8	0	0.00	804.00	743	123	1.33E-04	35.4	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:11:13.98

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3983.93*	409	0	29.21	161.24	101	100	4.01E-02	5.0	
2	0	4660.49*	471	0	31.01	387.06	308	102	4.62E-02	4.6	
3	0	4899.10*	387	0	110.41	467.73	409	128	3.79E-02	5.1	
4	0	5388.78*	418	0	47.84	634.99	553	104	4.09E-02	4.9	
5	0	5816.34*	5	0	4.50	783.00	743	123	4.55E-04	53.8	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : SPIKE
 Sample date : 2-SEP-2005 00:00:00 Acquisition date : 2-SEP-2005 08:08:32
 Sample ID : 01 Sample quantity : 1.0000 gram
 Sample type : TH Sample geometry :
 Detector name : 001 Detector geometry:
 Elapsed live time: 0 02:50:06.00 Elapsed real time: 0 02:50:06.00 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3983.93*	409	29.21	161.24	101	100	9.9		TH-232	5.04
0	4660.49*	471	31.01	387.06	308	102	9.2		TH-230	5.83
0	4899.10*	3871	10.41	467.73	409	128	10.2		TH229	4.79
0	5388.78*	418	47.84	634.99	553	104	9.8		TH-228	5.16
0	5816.34*	5	4.50	783.00	743	1231	07.6		TH-227	5.869E-02

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ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:11:32

Spectral File: ND_AMS_ARCHIVE_R:R_0508094A-TH\$02_TH.CNF

BATCH ID: 0508094A-TH * SAMPLE ID: 02
SAMPLE DATE: 2-SEP-2005 00:00 * ALIQUOT: 1.000E+00 gram
SAMPLE TITLE: BLANK * DETECTOR NUMBER: 002
ACQ DATE: 2-SEP-2005 08:08 * AVERAGE EFFICIENCY: 20.34%
ELAPSED LIVE TIME: 10201. * RECOVERY: 51.90%
TRACER ID: TH-18A * TRACER FWHM (kev): 35.37
LAMBDA VALUE: 459. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.310 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_002_26AUG05 * BKG ELAPSED TIME: 60002.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	-0.36	1.36	97.5	-9.270E-03	5.715E-02	2.094E-01
TH-228	5400.0	-0.85	0.85	99.9	-2.136E-02	1.952E-02	1.757E-01
TH229	4872.0	184.15	0.85	99.5	4.644E+00	8.114E-01	1.765E-01
TH-230	4672.0	8.32	0.68	99.8	2.092E-01	1.568E-01	1.646E-01
TH-232	3997.0	3.15	0.85	100.0	7.906E-02	1.033E-01	1.756E-01

Analyst J. P. Rie

Date 9-2-05

Reviewer Alan J. Frezley

Date 9/2/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.R]R_0508094A-TH\$02_TH.CNF;1

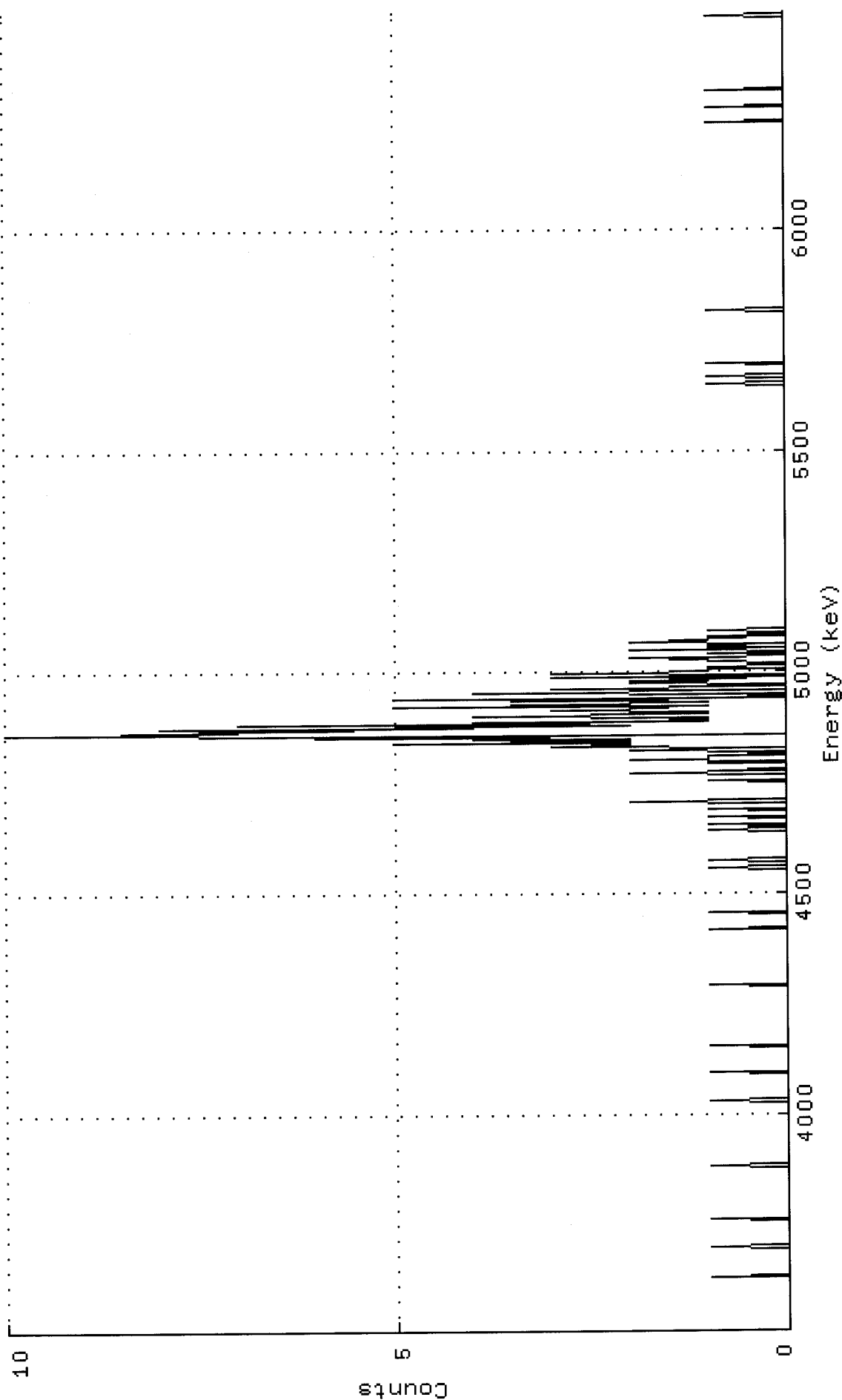
Title : 002

Sample Title: BLANK

Start Time: 2-SEP-2005 08:08: Sample Time: 2-SEP-2005 00:00: Energy Offset: 3.49865E+03

Real Time : 0 02:50:01.00 Sample ID : 02 Energy Slope : 3.05737E+00

Live Time : 0 02:50:01.00 Sample Type: TH Energy Quad : -1.36165E-04



Channel Contents for ND_AMS_ARCHIVE_R:R_0508094A-TH\$02_TH

Channel

1:	10201	10201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
127:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
393:	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0
407:	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
421:	0	0	0	2	0	1	0	0	0	0	0	0	1	0	0	0	2
435:	1	1	1	0	0	1	0	2	7	8	3	3	4	8	2	3	5
449:	2	2	2	6	0	5	10	7	8	7	3	2	2	2	1	5	3
463:	7	1	1	2	1	4	1	2	1	3	4	2	2	2	1	5	3
477:	2	2	1	2	5	0	0	1	0	4	0	1	3	1	3	0	0
491:	1	0	2	1	2	1	0	3	0	3	2	1	1	0	1	0	1
505:	1	0	0	0	1	1	1	2	1	0	1	0	0	0	0	0	0
519:	2	0	1	1	0	2	1	1	1	0	1	1	0	0	0	0	0
533:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
631:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
729:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:11:26.20

Detector ID: 2	Acquisition Start: 2-SEP-2005 08:08:47.01
Live Time: 0 02:50:01.00	Real Time: 0 02:50:01.00
Batch Id: 0508094A-TH	Sample Id: 02
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3972.28	4	0216.69	156.00	99	100	3.92E-04	50.0		
2	0	4627.32	9	0 3.06	375.44	307	103	8.82E-04	33.3		
3	0	4904.45	185	0 35.37	469.63	409	129	1.81E-02	7.4		
4	0	5299.96	0	0 0.00	605.50	554	104	0.00E+00	0.0		
5	0	5814.77	1	0 3.06	785.00	745	124	9.80E-05	100.0		

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:11:29.70

	Acquisition Start: 26-AUG-2005 13:00:13.01
Live Time: 0 16:40:02.00	Real Time: 0 16:40:02.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3949.66	5	0155.93	148.50	99	100	8.33E-05	44.7		
2	0	4575.73	4	0238.47	358.00	307	103	6.67E-05	50.0		
3	0	4914.32	5	0345.48	473.00	409	129	8.33E-05	44.7		
4	0	5299.96	5	0241.53	605.50	554	104	8.33E-05	44.7		
5	0	5875.85	8	0 4.49	806.50	745	124	1.33E-04	35.4		

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:11:30.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3972.28*	3	0216.69	156.00	99	100	3.09E-04	64.6		
2	0	4627.32*	8	0 3.06	375.44	307	103	8.16E-04	36.3		
3	0	4904.45*	184	0 35.37	469.63	409	129	1.81E-02	7.4		
4	0	5299.96*	-1	0 0.00	605.50	554	104	8.33E-05	44.7		
5	0	5814.77*	0	0 3.06	785.00	745	124	3.53E-05	308.1		

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : BLANK
 Sample date : 2-SEP-2005 00:00:00 Acquisition date : 2-SEP-2005 08:08:47
 Sample ID : 02 Sample quantity : 1.0000 gram
 Sample type : TH Sample geometry :
 Detector name : 002 Detector geometry:
 Elapsed live time: 0 02:50:01.00 Elapsed real time: 0 02:50:01.00 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3972.28*	3216.69		156.00	99	100	129.3		TH-232	4.103E-02
0	4627.32*	8	3.06	375.44	307	103	72.6		TH-230	0.109
0	4904.45*	184	35.37	469.63	409	129	14.8		TH229	2.41
0	5299.96*	-1	0.00	605.50	554	104	89.4		TH-228	-1.108E-02
0	5814.77*	0	3.06	785.00	745	124	616.3		TH-227	-4.811E-03

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:11:41


Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$03_TH.CNF

*
BATCH ID: 0508094A-TH * SAMPLE ID: 03
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 9.922E-01 gram
SAMPLE TITLE: VPSCR081705SL01 * DETECTOR NUMBER: 003
ACQ DATE: 2-SEP-2005 08:09 * AVERAGE EFFICIENCY: 20.63%
ELAPSED LIVE TIME: 10203. * RECOVERY: 93.73%
TRACER ID: TH-18A * TRACER FWHM (kev): 163.55
LAMBDA VALUE: 456. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.256 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_003_26AUG05 * BKG ELAPSED TIME: 60005.

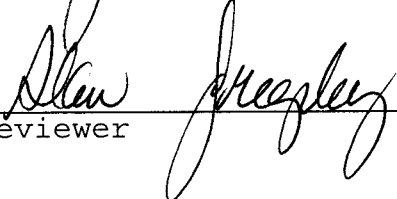
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	5.15	0.85	97.5	7.302E-02	7.126E-02	9.908E-02
TH-228	5400.0	34.98	1.02	99.9	4.911E-01	1.862E-01	1.023E-01
TH229	4872.0	335.64	1.36	99.5	4.656E+00	6.691E-01	1.128E-01
TH-230	4672.0	101.30	1.70	99.8	1.401E+00	3.592E-01	1.213E-01
TH-232	3997.0	51.32	0.68	100.0	7.085E-01	2.292E-01	9.036E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst 

Date 9-2-05

Reviewer 

Date 9/2/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$03_TH.CNF;1

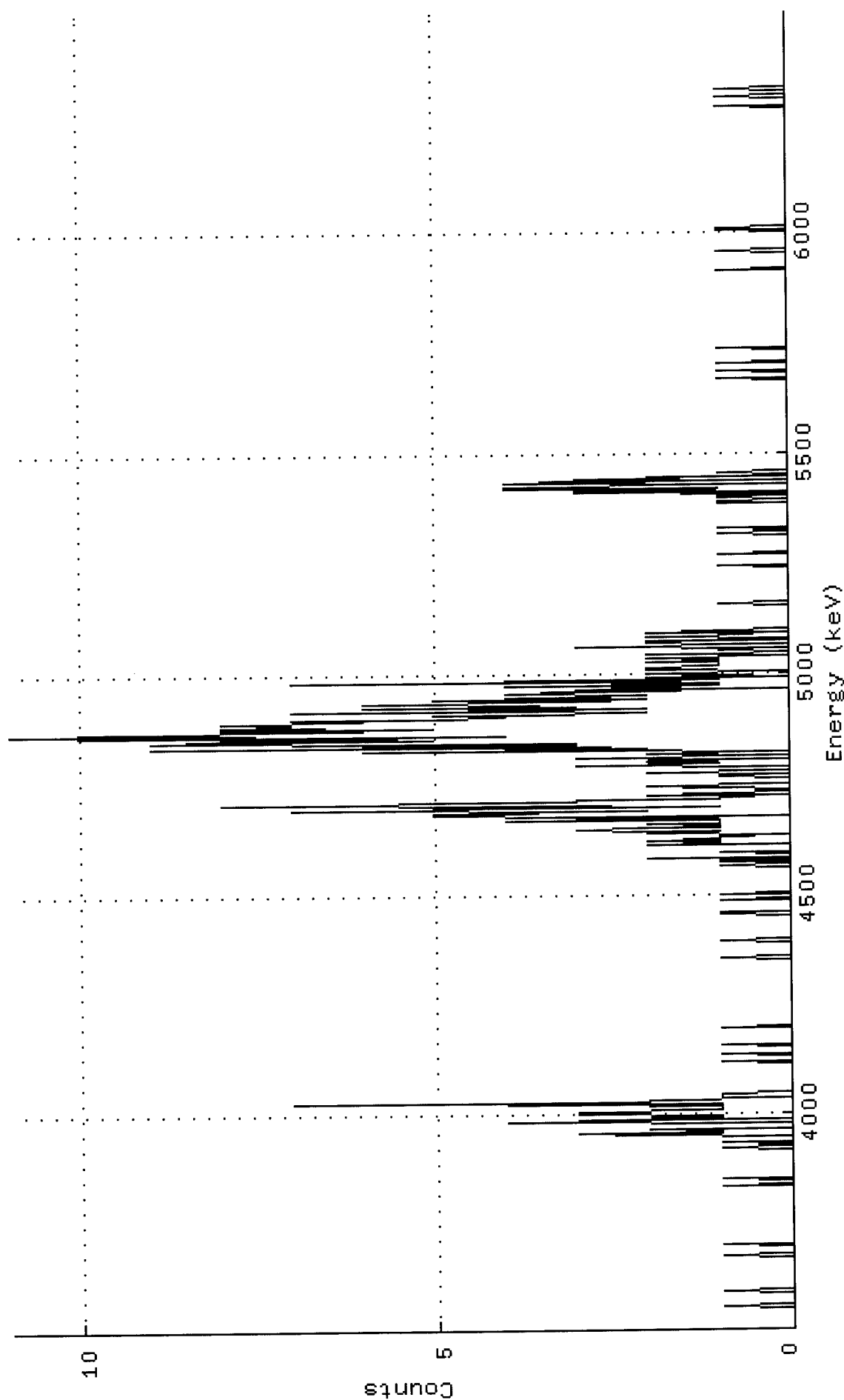
Title : 003

Sample Title: VPSCR081705SL01

Start Time: 2-SEP-2005 08:09: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.49798E+03

Real Time : 0 02:50:03.00 Sample ID : 03 Energy Slope : 3.06679E+00

Live Time : 0 02:50:03.00 Sample Type: TH Energy Quad : -1.37605E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-TH\$03_TH

Channel

1:	10203	10203	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
29:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
113:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
141:	0	0	1	0	0	0	0	0	2	3	1	1	2	0
155:	0	0	0	0	4	0	3	1	1	1	3	3	3	1
169:	1	1	2	1	7	2	2	0	1	1	1	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	1	0	0	0	0	0	1	0
211:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
295:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	1	1	0	0	0	0	0
323:	0	0	0	0	1	0	0	0	1	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	1	1	0	0	1	0	2	0	0	0	1	0	0
365:	0	0	0	0	2	1	1	2	1	1	1	0	2	1
379:	2	3	2	1	1	2	1	1	4	3	2	0	3	5
393:	5	5	2	7	3	1	4	7	8	3	3	1	1	0
407:	2	1	0	0	0	1	1	2	0	0	0	0	0	0
421:	1	0	0	2	0	0	0	0	0	3	1	1	2	0
435:	1	3	0	2	2	0	3	6	2	3	9	3	3	5
449:	9	8	5	6	10	4	11	9	10	6	8	5	8	7
463:	8	8	6	7	5	4	5	4	2	4	7	2	6	3
477:	4	5	6	3	2	5	3	2	2	4	3	0	3	2
491:	1	4	1	2	7	1	2	0	1	2	2	0	2	2
505:	2	1	1	1	1	2	1	1	2	0	2	1	0	1
519:	1	0	3	0	1	2	2	0	0	2	1	1	0	2
533:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
589:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
617:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
631:	0	0	1	1	0	0	1	0	1	0	3	0	2	4
645:	1	4	1	0	4	3	0	3	1	0	0	1	1	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	1	0	0	0	0	0	1	0	0	0	0	0	0
743:	1	0	0	0	0	0	0	0	0	0	0	1	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	1	0	1	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
953:	0	0	0	1	0	0	0	0	0	1	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:11:37.66

Detector ID: 3	Acquisition Start: 2-SEP-2005 08:09:05.01
Live Time: 0 02:50:03.00	Real Time: 0 02:50:03.00
Batch Id: 0508094A-TH	Sample Id: 03
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3991.65	52	0	45.46	162.15	99	100	5.10E-03	13.9	
2	0	4664.10	103	0	31.23	386.96	306	103	1.01E-02	9.9	
3	0	4903.18	337	0	163.55	468.03	408	128	3.30E-02	5.4	
4	0	5398.50	36	0	36.26	637.97	552	105	3.53E-03	16.7	
5	0	5884.21	6	0	0.00	807.33	743	124	5.88E-04	40.8	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:11:39.45

	Acquisition Start: 26-AUG-2005 13:00:16.01
Live Time: 0 16:40:05.00	Real Time: 0 16:40:05.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.36	4	0	88.94	148.50	99	100	6.67E-05	50.0	
2	0	4575.28	10	0	0.00	357.00	306	103	1.67E-04	31.6	
3	0	4913.38	8	0	0.00	471.50	408	128	1.33E-04	35.4	
4	0	5300.12	6	0	131.87	604.00	552	105	1.00E-04	40.8	
5	0	5876.15	5	0	0.00	804.50	743	124	8.33E-05	44.7	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:11:39.75

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3991.65*	51	0	45.46	162.15	99	100	5.03E-03	14.1	
2	0	4664.10*	101	0	31.23	386.96	306	103	9.93E-03	10.0	
3	0	4903.18*	336	0	163.55	468.03	408	128	3.29E-02	5.5	
4	0	5398.50*	35	0	36.26	637.97	552	105	3.43E-03	17.2	
5	0	5884.21*	5	0	0.00	807.33	743	124	5.05E-04	48.1	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL01
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:09:05
Sample ID        : 03 Sample quantity : 0.99220 gram
Sample type      : TH Sample geometry :
Detector name    : 003 Detector geometry:
Elapsed live time: 0 02:50:03.00 Elapsed real time: 0 02:50:03.00 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type  : Average value Efficiencies at : Peak Energy
Abundance limit  : 75.00
    
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3991.65*	51	45.46	162.15	99	100	28.1		TH-232	0.664
0	4664.10*	101	31.23	386.96	306	103	20.1		TH-230	1.31
0	4903.18*	336163.55	468.03	408	128	10.9			TH229	4.36
0	5398.50*	35	36.26	637.97	552	105	34.4		TH-228	0.460
0	5884.21*	5	0.00	807.33	743	124	96.3		TH-227	6.844E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:11:50

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$04_TH.CNF

BATCH ID: 0508094A-TH * SAMPLE ID: 04
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 9.836E-01 gram
SAMPLE TITLE: VPSCR081705SL01 * DETECTOR NUMBER: 005
ACQ DATE: 2-SEP-2005 08:09 * AVERAGE EFFICIENCY: 21.20%
ELAPSED LIVE TIME: 10205. * RECOVERY: 76.09%
TRACER ID: TH-18A * TRACER FWHM (kev): 87.65
LAMBDA VALUE: 456. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.261 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_005_26AUG05 * BKG ELAPSED TIME: 60003.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	5.47	1.53	97.5	9.377E-02	9.371E-02	1.449E-01
TH-228	5400.0	34.49	0.51	99.9	5.855E-01	2.236E-01	1.007E-01
TH229	4872.0	280.15	0.85	99.5	4.699E+00	7.126E-01	1.174E-01
TH-230	4672.0	83.15	0.85	99.8	1.390E+00	3.846E-01	1.170E-01
TH-232	3997.0	53.00	0.00	100.0	8.847E-01	2.843E-01	4.524E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst Jay Rie

9-205
Date

Reviewer Alan J. Gregory

9/2/05
Date

Spectrum : DKA100: [ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$04_TH.CNF;1

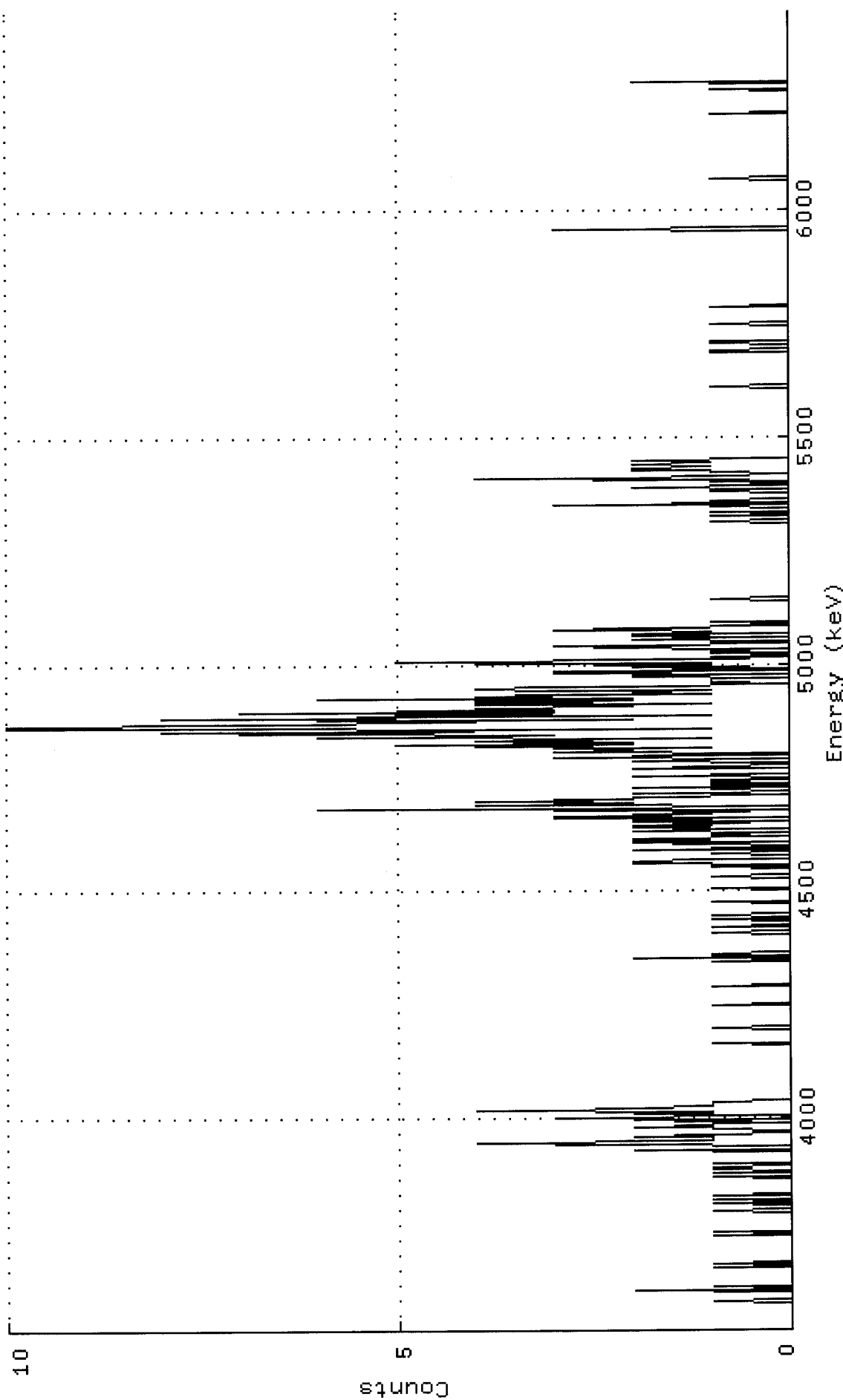
Title : 005

Sample Title: VPSCR081705SL01

Start Time: 2-SEP-2005 08:09: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.52032E+03

Real Time : 0 02:50:05.00 Sample ID : 04 Energy Slope : 2.98902E+00

Live Time : 0 02:50:05.00 Sample Type: TH Energy Quad : -1.40682E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-TH\$04_TH

Channel

1:	10205	10205	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
29:	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
99:	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	1	0	0	0	1	0	1	1	1	1	0	0
127:	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1
141:	0	2	4	1	1	1	1	2	1	0	0	0	0	0	1	4	3
155:	2	1	1	0	1	2	0	3	0	2	0	1	0	0	0	0	0
169:	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
309:	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
323:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
351:	0	0	2	1	2	1	0	0	0	1	1	0	0	0	0	0	2
365:	0	0	0	1	2	0	2	2	2	0	1	1	0	1	0	1	2
379:	1	0	2	1	2	1	0	2	1	3	0	3	2	3	2	2	0
393:	1	0	6	3	0	3	4	2	3	4	2	2	0	2	2	0	1
407:	2	1	0	1	0	2	0	1	0	1	1	1	0	0	0	0	0
421:	2	0	0	0	0	0	2	1	0	0	0	0	2	2	1	0	0
435:	3	0	2	0	3	3	2	3	1	4	2	5	2	5	2	3	7
449:	4	1	6	5	3	6	8	7	1	10	8	10	7	7	2	4	2
463:	4	6	2	8	3	1	5	3	7	3	4	4	4	4	2	4	4
477:	1	4	2	6	2	4	3	1	2	1	3	4	3	4	3	2	1
491:	0	1	1	1	1	0	2	2	0	3	0	3	0	3	0	1	1
505:	2	1	4	1	5	1	0	1	0	0	1	0	1	1	0	2	0
519:	2	3	2	0	1	0	2	1	0	2	0	2	0	2	1	0	0
533:	3	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	1	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0
631:	3	0	1	1	0	0	0	0	0	0	0	1	0	0	0	2	0
645:	0	0	0	1	0	1	4	2	1	0	0	1	1	1	1	2	0
659:	2	1	1	2	1	1	2	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
757:	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
953:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:11:46.06

Detector ID: 5	Acquisition Start: 2-SEP-2005 08:09:24.01
Live Time: 0 02:50:05.00	Real Time: 0 02:50:05.00
Batch Id: 0508094A-TH	Sample Id: 04
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3965.23	53	0	80.65	149.91	94	103	5.19E-03	13.7	
2	0	4643.55	84	0	23.79	382.68	307	105	8.23E-03	10.9	
3	0	4896.89	281	0	87.65	470.98	411	132	2.75E-02	6.0	
4	0	5398.85	35	0	63.73	648.26	560	107	3.43E-03	16.9	
5	0	5828.21	7	0	2.99	802.43	756	128	6.86E-04	37.8	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:11:48.56

Live Time: 0 16:40:03.00	Acquisition Start: 26-AUG-2005 13:00:19.01
	Real Time: 0 16:40:03.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.77	0	0	0.00	145.00	94	103	0.00E+00	0.0	
2	0	4575.24	5	0	185.32	359.00	307	105	8.33E-05	44.7	
3	0	4912.64	5	0	167.38	476.50	411	132	8.33E-05	44.7	
4	0	5299.72	3	0	2.99	613.00	560	107	5.00E-05	57.7	
5	0	5875.34	9	0	0.00	819.50	756	128	1.50E-04	33.3	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:11:48.84

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3965.23*	53	0	80.65	149.91	94	103	5.19E-03	13.7	
2	0	4643.55*	83	0	23.79	382.68	307	105	8.15E-03	11.0	
3	0	4896.89*	280	0	87.65	470.98	411	132	2.75E-02	6.0	
4	0	5398.85*	34	0	63.73	648.26	560	107	3.38E-03	17.2	
5	0	5828.21*	5	0	2.99	802.43	756	128	5.36E-04	49.3	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL01
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:09:24
Sample ID         : 04 Sample quantity : 0.98360 gram
Sample type       : TH Sample geometry :
Detector name     : 005 Detector geometry:
Elapsed live time: 0 02:50:05.00 Elapsed real time: 0 02:50:05.00 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type  : Average value Efficiencies at : Peak Energy
Abundance limit  : 75.00

```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3965.23*	53	80.65	149.91	94	103	27.5		TH-232	0.673
0	4643.55*	83	23.79	382.68	307	105	22.1		TH-230	1.06
0	4896.89*	280	87.65	470.98	411	132	12.0		TH229	3.58
0	5398.85*	34	63.73	648.26	560	107	34.3		TH-228	0.445
0	5828.21*	5	2.99	802.43	756	128	98.5		TH-227	7.135E-02

Eberline Services
Oak Ridge Laboratory

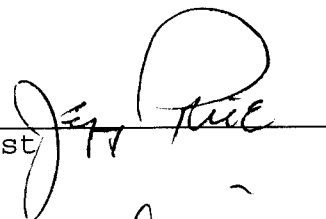
ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:11:59

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$05_TH.CNF

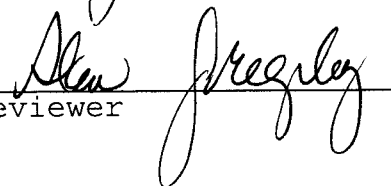
BATCH ID: 0508094A-TH * SAMPLE ID: 05
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 9.944E-01 gram
SAMPLE TITLE: VPSCR081705SL02 * DETECTOR NUMBER: 006
ACQ DATE: 2-SEP-2005 08:09 * AVERAGE EFFICIENCY: 20.92%
ELAPSED LIVE TIME: 10208. * RECOVERY: 87.84%
TRACER ID: TH-18A * TRACER FWHM (kev): 75.49
LAMBDA VALUE: 455. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.234 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_006_26AUG05 * BKG ELAPSED TIME: 60006.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	5.81	1.19	97.5	8.647E-02	8.111E-02	1.157E-01
TH-228	5400.0	36.81	1.19	99.9	5.425E-01	2.022E-01	1.129E-01
TH229	4872.0	318.32	0.68	99.5	4.636E+00	6.761E-01	9.533E-02
TH-230	4672.0	166.15	0.85	99.8	2.412E+00	5.411E-01	1.016E-01
TH-232	3997.0	28.66	0.34	100.0	4.154E-01	1.700E-01	7.859E-02

Analyst 

9-2-05
Date

Reviewer 

9/2/05
Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$05_TH.CNF;1

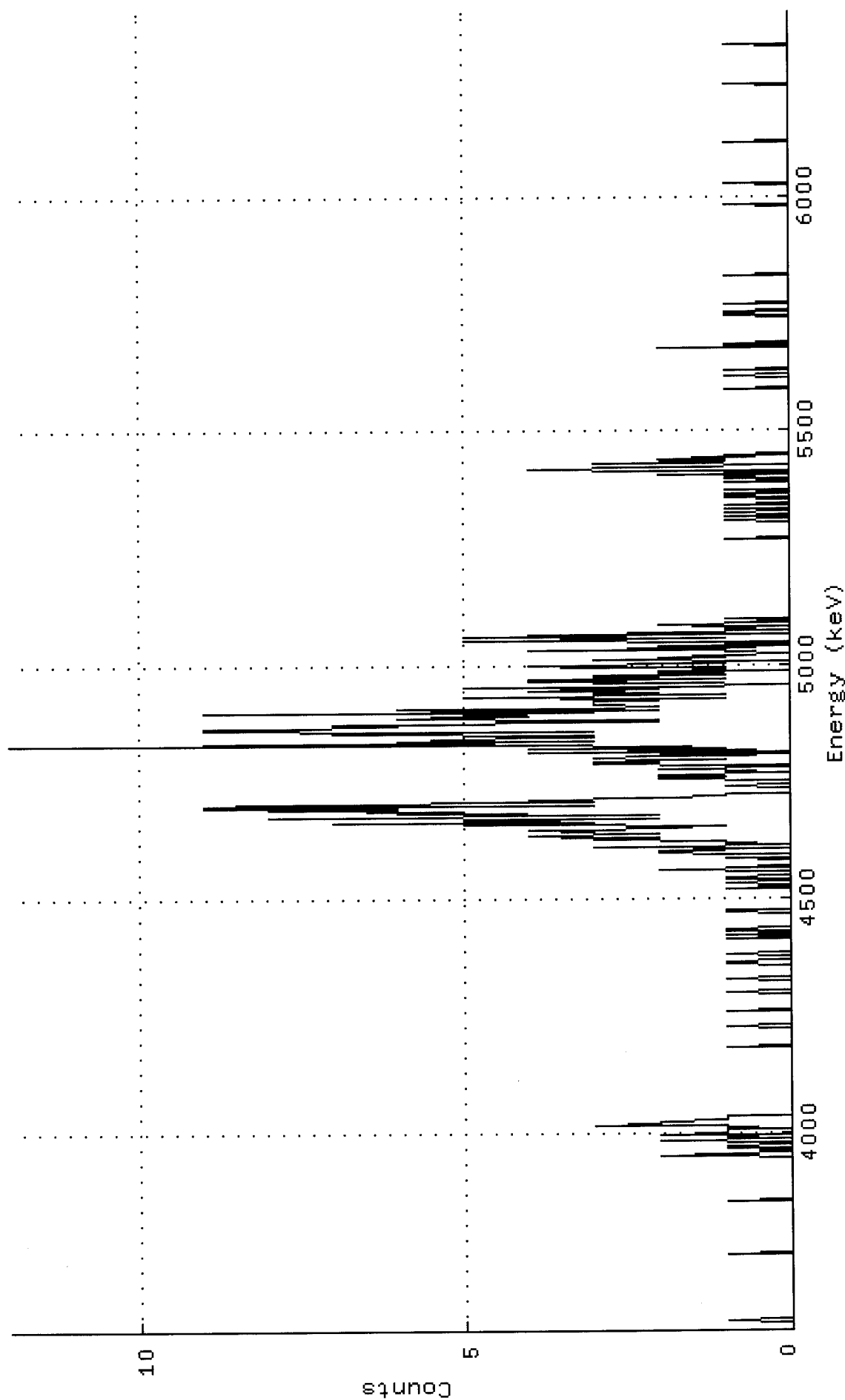
Title : 006

Sample Title: VPSCR081705SL02

Start Time: 2-SEP-2005 08:09: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.56747E+03

Real Time : 0 02:50:08.00 Sample ID : 05 Energy Slope : 2.88433E+00

Live Time : 0 02:50:08.00 Sample Type: TH Energy Quad : -1.25475E-04



Channel Contents for ND AMS ARCHIVE S:S 0508094A-TH\$05 TH

Channel

1:	10208	10208	0	0	0	0	0	0	0	1	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	1	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	1	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	1	2	1	0	0	1	0
141:	1	0	0	0	2	0	0	1	0	2	1	1	0
155:	1	1	3	2	2	2	1	1	1	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	1	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	1	0	0	0	0	0
239:	0	0	0	0	1	0	0	0	0	0	0	0	0
253:	0	0	0	0	1	0	0	0	0	0	0	0	0
267:	1	0	0	0	0	0	0	0	0	0	0	1	1
281:	0	0	0	0	0	1	0	0	0	0	0	0	0
295:	0	0	0	1	0	1	0	0	1	0	1	0	0
309:	0	0	0	0	0	0	0	0	0	1	1	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	1
337:	0	0	0	1	0	1	0	1	0	0	0	0	2
351:	0	1	0	0	0	0	0	1	0	0	0	1	2
365:	2	0	3	2	0	1	1	1	3	2	3	4	3
379:	3	4	3	2	1	2	3	7	3	5	2	2	2
393:	6	5	5	8	6	9	3	9	8	3	4	4	2
407:	1	1	0	0	0	0	0	1	0	0	0	0	2
421:	1	2	2	0	0	1	1	2	0	0	1	3	1
435:	2	3	2	1	0	4	0	1	4	1	2	4	6
449:	3	6	5	4	3	3	7	3	6	9	9	8	7
463:	7	2	2	3	6	5	4	5	3	9	2	6	2
477:	3	3	3	3	1	2	5	1	3	2	4	3	5
491:	2	0	2	2	4	1	4	2	3	1	2	0	1
505:	1	3	4	1	2	0	3	1	2	1	0	0	1
519:	4	1	0	2	0	1	0	5	1	2	5	0	1
533:	1	0	1	0	1	2	0	1	0	1	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	1	0	0	0	0	0	0	0	0	0	0
617:	0	0	1	1	0	1	0	0	1	1	0	1	0
631:	0	1	0	0	0	0							

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:11:54.66

Detector ID: 6	Acquisition Start: 2-SEP-2005 08:09:41.01
Live Time: 0 02:50:08.00	Real Time: 0 02:50:08.00
Batch Id: 0508094A-TH	Sample Id: 05
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3995.53	29	0	77.76	149.38	81	106	2.84E-03	18.6	
2	0	4660.27	167	0	47.01	385.34	301	109	1.64E-02	7.7	
3	0	4903.24	319	0	75.49	472.84	409	136	3.13E-02	5.6	
4	0	5392.28	38	0	18.75	651.11	562	111	3.72E-03	16.2	
5	0	5833.71	7	0	305.74	814.57	765	132	6.86E-04	37.8	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:11:57.06

Live Time: 0 16:40:06.00	Acquisition Start: 26-AUG-2005 13:00:21.01
	Real Time: 0 16:40:06.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.29	2	0	17.31	133.50	81	106	3.33E-05	70.7	
2	0	4575.59	5	0	271.13	355.00	301	109	8.33E-05	44.7	
3	0	4913.36	4	0	349.00	476.50	409	136	6.67E-05	50.0	
4	0	5299.33	7	0	219.21	617.00	562	111	1.17E-04	37.8	
5	0	5876.36	7	0	2.88	830.50	765	132	1.17E-04	37.8	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:11:57.35

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3995.53*	29	0	77.76	149.38	81	106	2.81E-03	18.8	
2	0	4660.27*	166	0	47.01	385.34	301	109	1.63E-02	7.8	
3	0	4903.24*	318	0	75.49	472.84	409	136	3.12E-02	5.6	
4	0	5392.28*	37	0	18.75	651.11	562	111	3.61E-03	16.8	
5	0	5833.71*	6	0	305.74	814.57	765	132	5.69E-04	46.2	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL02
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:09:41
Sample ID         : 05 Sample quantity : 0.99440 gram
Sample type       : TH Sample geometry :
Detector name     : 006 Detector geometry:
Elapsed live time: 0 02:50:08.00 Elapsed real time: 0 02:50:08.00 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type  : Average value Efficiencies at : Peak Energy
Abundance limit  : 75.00
    
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3995.53*	29	77.76	149.38	81	106	37.6		TH-232	0.365
0	4660.27*	166	47.01	385.34	301	109	15.6		TH-230	2.12
0	4903.24*	318	75.49	472.84	409	136	11.2		TH229	4.07
0	5392.28*	37	18.75	651.11	562	111	33.6		TH-228	0.477
0	5833.71*	6305.74	814.57	765	132	92.4			TH-227	7.596E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:12:13

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$06_TH.CNF

BATCH ID: 0508094A-TH * SAMPLE ID: 06
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.021E+00 gram
SAMPLE TITLE: VPSCR081705SL03 * DETECTOR NUMBER: 007
ACQ DATE: 2-SEP-2005 08:10 * AVERAGE EFFICIENCY: 20.59%
ELAPSED LIVE TIME: 10206. * RECOVERY: 85.23%
TRACER ID: TH-18A * TRACER FWHM (kev): 113.14
LAMBDA VALUE: 456. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.263 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_007_26AUG05 * BKG ELAPSED TIME: 60003.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	2.32	0.68	97.5	3.521E-02	5.389E-02	9.921E-02
TH-228	5400.0	18.98	1.02	99.9	2.852E-01	1.428E-01	1.095E-01
TH229	4872.0	304.83	0.17	99.5	4.526E+00	6.685E-01	6.872E-02
TH-230	4672.0	98.83	0.17	99.8	1.463E+00	3.793E-01	6.851E-02
TH-232	3997.0	25.49	0.51	100.0	3.767E-01	1.630E-01	8.913E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst

Date

Reviewer

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.SJS_0508094A-TH\$06_TH.CNF;1

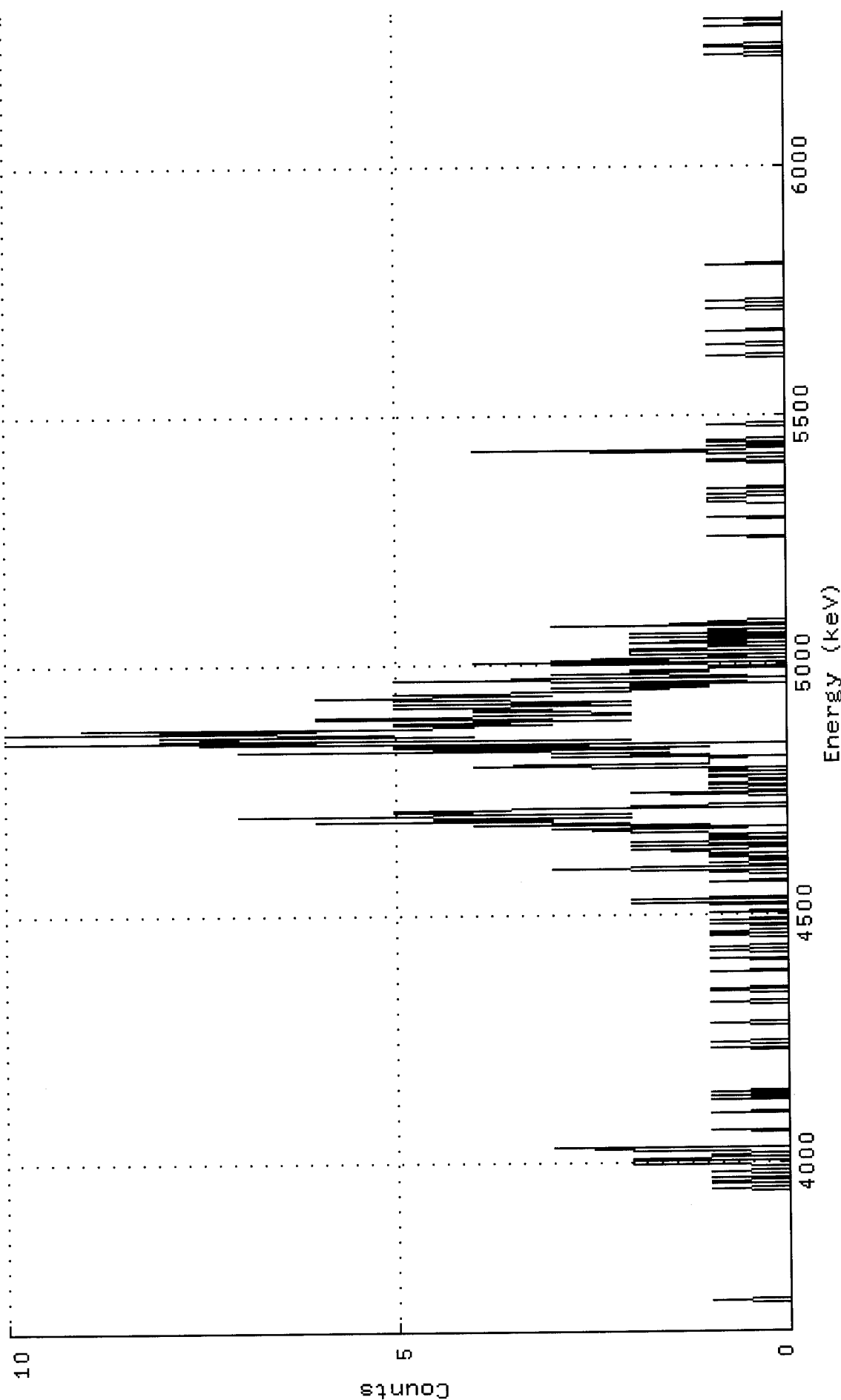
Title : 007

Sample Title: VPSCR081705SL03

Start Time: 2-SEP-2005 08:10: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.65079E+03

Real Time : 0 02:50:06.00 Sample ID : 06 Energy Slope : 2.69568E+00

Live Time : 0 02:50:06.00 Sample Type: TH Energy Quad : -1.00659E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-TH\$06_TH

Channel

1:	10206	10206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
113:	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0	0	0
127:	0	1	2	2	2	0	2	0	1	1	0	1	1	2	2	1	1
141:	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
183:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
253:	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
281:	0	0	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0
309:	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0
323:	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
351:	0	1	3	1	0	0	1	1	0	0	0	1	0	1	0	1	0
365:	1	1	2	1	0	0	2	0	2	2	0	0	0	1	1	1	1
379:	0	2	2	2	3	1	0	4	1	3	3	6	3	4	0	4	0
393:	2	7	2	3	5	5	2	0	2	0	0	0	0	0	0	0	0
407:	0	0	0	1	2	0	0	1	1	0	0	1	1	1	1	0	0
421:	0	0	1	1	0	0	0	1	1	1	0	1	4	3	1	1	1
435:	1	1	1	1	0	3	1	2	4	7	7	10	1	5	5	5	5
449:	0	5	10	2	8	7	8	4	6	6	7	2	6	9	3	3	3
463:	4	5	3	5	2	6	3	6	2	2	2	3	4	2	2	2	2
477:	5	5	2	3	5	2	5	4	6	3	3	5	2	3	1	1	1
491:	2	1	3	1	2	0	1	5	2	0	1	2	1	3	0	2	2
505:	1	2	0	0	0	2	4	0	3	2	0	0	2	0	0	0	0
519:	2	2	0	2	0	0	1	0	2	1	0	0	2	0	0	0	0
533:	2	0	1	1	0	0	0	3	0	1	1	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
631:	0	0	0	0	0	1	1	1	1	0	0	1	0	0	0	0	0
645:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
673:	0	1	1	4	1	0	0	1	0	0	1	1	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
757:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
995:	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:12:02.69

Detector ID: 7	Acquisition Start: 2-SEP-2005 08:10:03.01
Live Time: 0 02:50:06.00	Real Time: 0 02:50:06.00
Batch Id: 0508094A-TH	Sample Id: 06
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4008.56	26	0	34.82	133.38	55	114	2.55E-03	19.6	
2	0	4644.76	99	0	34.03	373.95	290	116	9.70E-03	10.1	
3	0	4897.67	305	0	113.14	470.83	405	145	2.99E-02	5.7	
4	0	5384.17	20	0	3.59	659.25	568	118	1.96E-03	22.4	
5	0	5747.14	3	0	97.04	801.67	783	140	2.94E-04	57.7	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:12:11.95

Live Time: 0 16:40:03.00	Acquisition Start: 26-AUG-2005 13:00:24.01
	Real Time: 0 16:40:03.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.10	3	0	2.70	111.50	55	114	5.00E-05	57.7	
2	0	4575.38	1	0	2.70	347.50	290	116	1.67E-05	100.0	
3	0	4913.73	1	0	2.70	477.00	405	145	1.67E-05	100.0	
4	0	5300.12	6	0	215.65	626.50	568	118	1.00E-04	40.8	
5	0	5875.70	4	0	0.00	852.50	783	140	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:12:12.23

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4008.56*	25	0	34.82	133.38	55	114	2.50E-03	20.0	
2	0	4644.76*	99	0	34.03	373.95	290	116	9.68E-03	10.1	
3	0	4897.67*	305	0	113.14	470.83	405	145	2.99E-02	5.7	
4	0	5384.17*	19	0	3.59	659.25	568	118	1.86E-03	23.7	
5	0	5747.14*	2	0	97.04	801.67	783	140	2.27E-04	76.1	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL03
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:10:03
Sample ID         : 06 Sample quantity : 1.0213 gram
Sample type       : TH Sample geometry :
Detector name     : 007 Detector geometry:
Elapsed live time: 0 02:50:06.00 Elapsed real time: 0 02:50:06.00 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type  : Average value Efficiencies at : Peak Energy
Abundance limit  : 75.00
    
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4008.56*	25	34.82	133.38	55	114	40.1		TH-232	0.321
0	4644.76*	99	34.03	373.95	290	116	20.1		TH-230	1.25
0	4897.67*	3051	13.14	470.83	405	145	11.5		TH229	3.86
0	5384.17*	19	3.59	659.25	568	118	47.3		TH-228	0.243
0	5747.14*	2	97.04	801.67	783	1401	52.2		TH-227	3.001E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:12:27

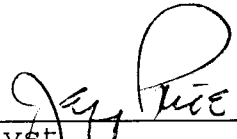
Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$07_TH.CNF

BATCH ID: 0508094A-TH * SAMPLE ID: 07
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.019E+00 gram
SAMPLE TITLE: VPSCR081705SL04 * DETECTOR NUMBER: 008
ACQ DATE: 2-SEP-2005 08:10 * AVERAGE EFFICIENCY: 18.47%
ELAPSED LIVE TIME: 10205. * RECOVERY: 66.92%
TRACER ID: TH-18A * TRACER FWHM (kev): 132.24
LAMBDA VALUE: 456. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.252 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_008_26AUG05 * BKG ELAPSED TIME: 60001.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	5.00	0.00	97.5	1.079E-01	9.847E-02	5.842E-02
TH-228	5400.0	34.49	0.51	99.9	7.372E-01	2.858E-01	1.268E-01
TH229	4872.0	214.49	0.51	99.5	4.530E+00	7.500E-01	1.274E-01
TH-230	4672.0	66.66	0.34	99.8	1.404E+00	4.272E-01	1.142E-01
TH-232	3997.0	33.66	0.34	100.0	7.075E-01	2.763E-01	1.140E-01

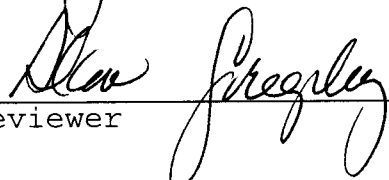
*** Tracer FWHM > 80.0 Kev ***



Analyst

9-205

Date



Reviewer

9/2/05

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$07_TH.CNF;1

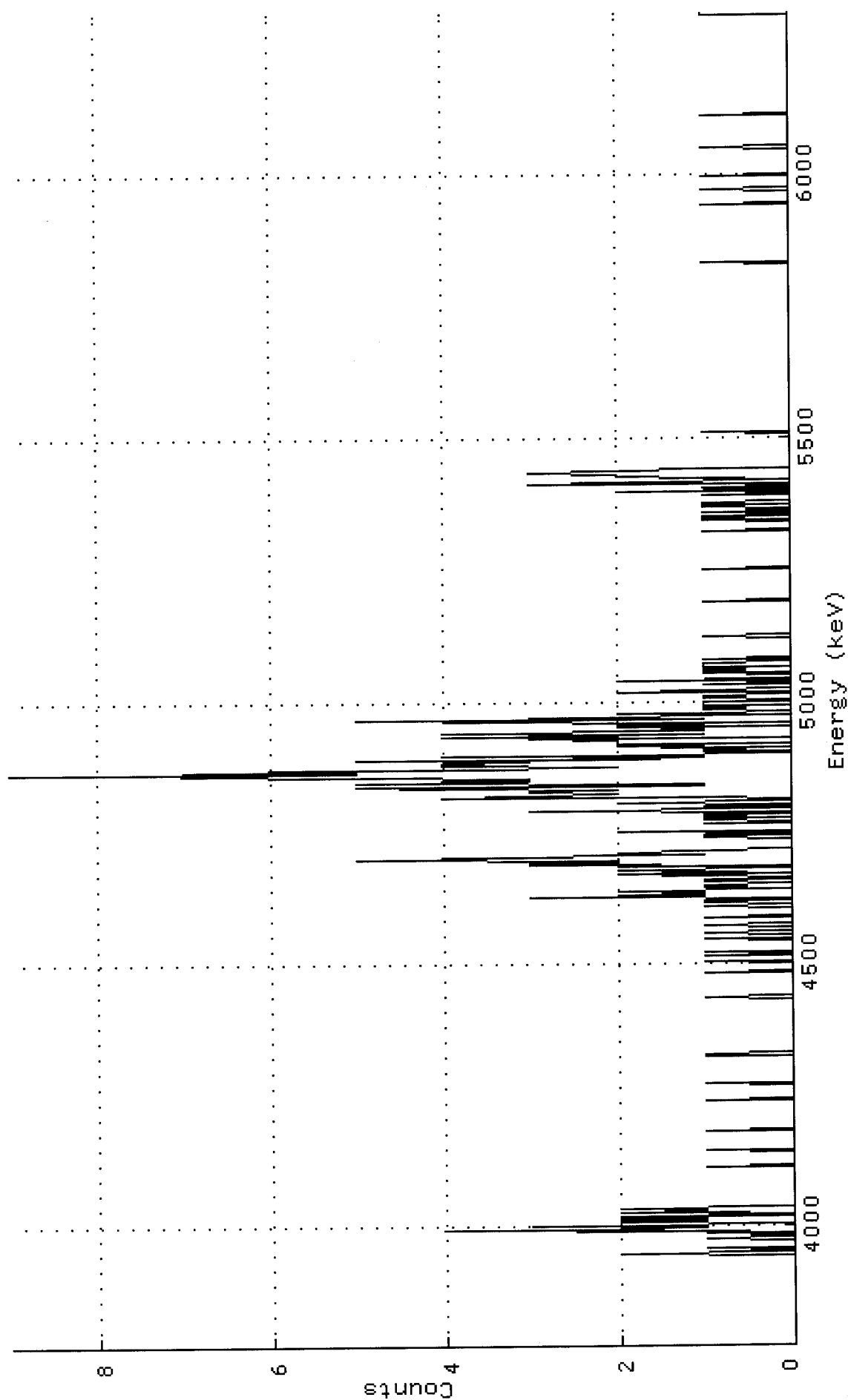
Title : 008

Sample Title: VPSCR081705SL04

Start Time: 2-SEP-2005 08:10: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.76453E+03

Real Time : 0 02:50:05.00 Sample ID : 07 Energy Slope : 2.56154E+00

Live Time : 0 02:50:05.00 Sample Type: TH Energy Quad : -7.92413E-05



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-TH\$07_TH

Channel

1:	10205	10205	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	2	0	0	0	1	0	0	0	0	0	0	1	1	1	1	0	0
85:	0	1	0	1	4	2	1	3	2	0	0	2	2	1	1	2	0
99:	0	2	0	1	2	1	2	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1
295:	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	1
323:	0	0	1	0	0	0	0	0	0	0	1	1	1	0	1	0	0
337:	0	1	0	2	3	1	1	2	2	0	1	1	1	1	1	0	0
351:	0	1	1	0	0	1	2	0	1	2	2	2	0	0	2	0	0
365:	3	2	3	2	5	3	4	1	2	2	2	1	0	0	0	0	0
379:	0	0	0	0	0	0	1	1	0	0	2	1	0	0	3	3	3
393:	0	0	0	1	0	1	0	0	1	4	3	5	2	2	4	0	4
407:	0	0	1	0	2	2	0	0	1	4	3	5	1	5	7	5	2
421:	2	2	4	5	1	1	5	3	4	3	5	2	3	4	0	1	1
435:	9	5	6	4	2	4	4	4	3	5	2	2	3	5	1	4	4
449:	0	0	1	1	0	1	2	0	2	0	2	2	3	5	0	1	1
463:	1	2	4	1	2	1	2	0	2	0	2	2	3	5	0	0	0
477:	3	0	2	1	0	1	1	1	0	1	1	1	1	0	0	0	0
491:	1	1	1	0	0	2	1	0	0	0	0	0	1	1	0	1	1
505:	2	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
519:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0
631:	1	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0
645:	0	0	1	0	0	2	0	0	0	1	0	0	3	2	0	0	0
659:	0	1	2	2	2	3	3	2	1	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:12:17.44

Detector ID: 8	Acquisition Start: 2-SEP-2005 08:10:21.01
Live Time: 0 02:50:05.00	Real Time: 0 02:50:05.00
Batch Id: 0508094A-TH	Sample Id: 07
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4000.57	34	0	11.91	92.41	14	118	3.33E-03	17.1	
2	0	4652.41	67	0	79.36	350.42	260	120	6.57E-03	12.2	
3	0	4888.26	215	0	132.24	444.81	380	151	2.11E-02	6.8	
4	0	5393.45	35	0	42.67	648.94	550	123	3.43E-03	16.9	
5	0	5955.38	5	0	233.10	879.20	774	145	4.90E-04	44.7	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:12:25.04

Live Time: 0 16:40:01.00	Acquisition Start: 26-AUG-2005 13:00:27.01
	Real Time: 0 16:40:01.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3949.83	2	0	0.00	72.50	14	118	3.33E-05	70.7	
2	0	4574.85	2	0	89.65	319.50	260	120	3.33E-05	70.7	
3	0	4913.63	3	0	174.18	455.00	380	151	5.00E-05	57.7	
4	0	5300.05	3	0	140.88	611.00	550	123	5.00E-05	57.7	
5	0	5874.88	0	0	0.00	846.00	774	145	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:12:25.33

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4000.57*	34	0	11.91	92.41	14	118	3.30E-03	17.3	
2	0	4652.41*	67	0	79.36	350.42	260	120	6.53E-03	12.3	
3	0	4888.26*	214	0	132.24	444.81	380	151	2.10E-02	6.8	
4	0	5393.45*	34	0	42.67	648.94	550	123	3.38E-03	17.2	
5	0	5955.38*	5	0	233.10	879.20	774	145	4.90E-04	44.7	

Flag: "*" = Peak area was modified by background subtraction


```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL04
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:10:21
Sample ID         : 07 Sample quantity : 1.0194 gram
Sample type       : TH Sample geometry :
Detector name     : 008 Detector geometry:
Elapsed live time: 0 02:50:05.00 Elapsed real time: 0 02:50:05.00 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type  : Average value Efficiencies at : Peak Energy
Abundance limit  : 75.00

```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4000.57*	34	11.91	92.41	14	118	34.7		TH-232	0.473
0	4652.41*	67	79.36	350.42	260	120	24.6		TH-230	0.939
0	4888.26*	214132.24	444.81	444.81	380	151	13.7		TH229	3.03
0	5393.45*	34	42.67	648.94	550	123	34.3		TH-228	0.493
0	5955.38*	5233.10	879.20	879.20	774	145	89.4		TH-227	7.223E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:12:55

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$08_TH.CNF

*
BATCH ID: 0508094A-TH * SAMPLE ID: 08
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.043E+00 gram
SAMPLE TITLE: VPSCR081705SL05 * DETECTOR NUMBER: 009
ACQ DATE: 2-SEP-2005 08:10 * AVERAGE EFFICIENCY: 20.48%
ELAPSED LIVE TIME: 10203. * RECOVERY: 81.64%
TRACER ID: TH-18A * TRACER FWHM (kev): 40.40
LAMBDA VALUE: 454. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.198 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_009_26AUG05 * BKG ELAPSED TIME: 60001.

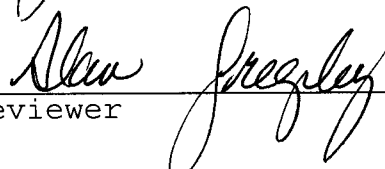
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	5.15	0.85	97.5	8.038E-02	7.851E-02	1.091E-01
TH-228	5400.0	30.64	1.36	99.9	4.735E-01	1.922E-01	1.237E-01
TH229	4872.0	288.49	0.51	99.5	4.405E+00	6.618E-01	9.209E-02
TH-230	4672.0	121.83	0.17	99.8	1.855E+00	4.554E-01	7.044E-02
TH-232	3997.0	39.83	0.17	100.0	6.052E-01	2.168E-01	7.032E-02



Analyst

9-205
Date



Reviewer

9/2/05
Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$08_TH.CNF;1

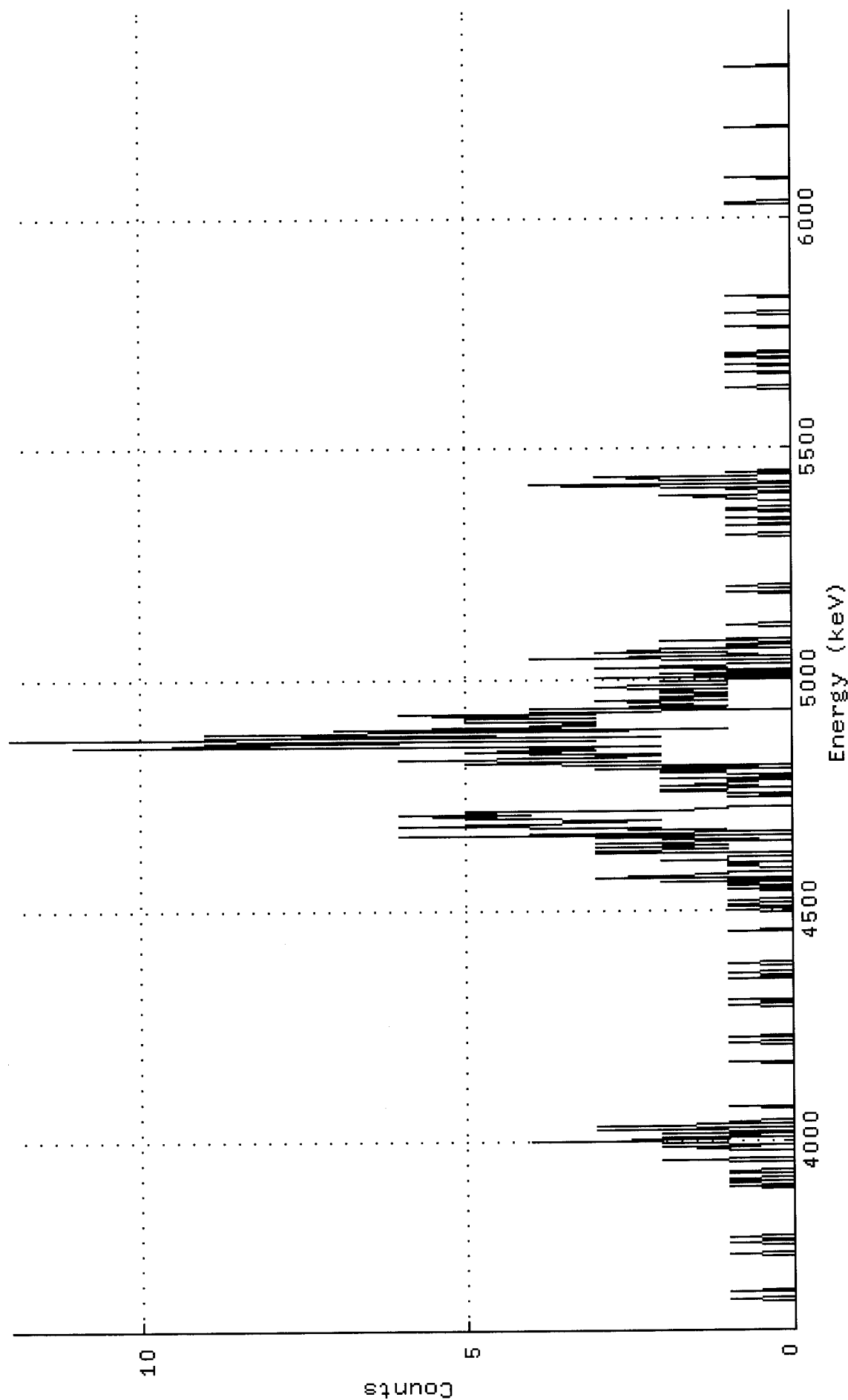
Title : 009

Sample Title: VPSCR081705SL05

Start Time: 2-SEP-2005 08:10: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.57924E+03

Real Time : 0 02:50:03.00 Sample ID : 08 Energy Slope : 2.90930E+00

Live Time : 0 02:50:03.00 Sample Type: TH Energy Quad : -1.12412E-04



Channel Contents for ND AMS ARCHIVE S:S 0508094A-TH\$08_TH

Channel

1:	10203	10203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
29:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
57:	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	
71:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
113:	0	1	0	1	1	0	0	0	0	1	1	0	0	0	0	0	
127:	0	0	0	0	2	2	0	0	0	0	0	0	0	1	1	0	
141:	2	1	0	2	2	4	1	2	0	1	0	2	0	0	2	0	
155:	3	0	3	0	1	1	0	0	0	0	0	0	0	0	0	0	
169:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
197:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	
211:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
239:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
267:	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
295:	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
309:	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	
323:	1	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	
337:	0	0	1	0	1	0	2	0	0	3	2	1	0	1	0	0	
351:	0	0	0	1	1	1	0	2	1	1	1	0	0	0	0	0	
365:	3	3	1	3	2	1	3	3	0	1	1	3	0	6	5	0	
379:	2	1	0	2	3	2	6	4	3	0	2	5	4	5	0	0	
393:	6	4	5	5	2	1	1	0	0	0	0	0	0	0	0	0	
407:	1	0	0	0	2	1	2	0	1	2	1	1	1	5	2	0	
421:	2	0	0	1	0	2	2	0	3	1	0	2	2	5	8	0	
435:	3	6	3	3	2	4	2	5	4	3	4	2	11	4	3	0	
449:	9	3	5	12	6	2	7	8	9	4	1	7	4	2	4	0	
463:	4	3	3	5	5	5	3	5	6	3	4	0	2	2	1	0	
477:	1	2	2	2	3	1	2	2	1	1	2	1	2	2	1	0	
491:	2	3	2	1	1	1	2	0	0	3	0	0	1	2	1	0	
505:	0	3	1	2	0	0	0	0	0	4	1	0	0	1	0	0	
519:	3	2	2	0	1	0	1	0	1	2	0	0	0	0			

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:12:30.81

Detector ID: 9	Acquisition Start: 2-SEP-2005 08:10:39.01
Live Time: 0 02:50:03.00	Real Time: 0 02:50:03.00
Batch Id: 0508094A-TH	Sample Id: 08
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3993.33	40	0	35.85	143.12	76	105	3.92E-03	15.8	
2	0	4655.34	122	0	55.73	375.33	294	107	1.20E-02	9.1	
3	0	4897.57	289	0	40.40	461.37	400	135	2.83E-02	5.9	
4	0	5392.72	32	0	22.95	639.12	552	109	3.14E-03	17.7	
5	0	5854.74	6	0	349.12	807.33	751	129	5.88E-04	40.8	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:12:53.19

	Acquisition Start: 26-AUG-2005 13:00:29.01
Live Time: 0 16:40:01.00	Real Time: 0 16:40:01.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3949.78	1	0	2.91	128.00	76	105	1.67E-05	100.0	
2	0	4575.23	1	0	2.91	347.00	294	107	1.67E-05	100.0	
3	0	4913.36	3	0	81.46	467.00	400	135	5.00E-05	57.7	
4	0	5300.99	8	0	232.74	606.00	552	109	1.33E-04	35.4	
5	0	5875.65	5	0	293.84	815.00	751	129	8.33E-05	44.7	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:12:53.45

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3993.33*	40	0	35.85	143.12	76	105	3.90E-03	15.9	
2	0	4655.34*	122	0	55.73	375.33	294	107	1.19E-02	9.1	
3	0	4897.57*	288	0	40.40	461.37	400	135	2.83E-02	5.9	
4	0	5392.72*	31	0	22.95	639.12	552	109	3.00E-03	18.5	
5	0	5854.74*	5	0	349.12	807.33	751	129	5.05E-04	48.1	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL05
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:10:39
Sample ID         : 08 Sample quantity : 1.0428 gram
Sample type       : TH Sample geometry :
Detector name     : 009 Detector geometry:
Elapsed live time: 0 02:50:03.00 Elapsed real time: 0 02:50:03.00 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type  : Average value Efficiencies at : Peak Energy
Abundance limit  : 75.00
    
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3993.33*	40	35.85	143.12	76	105	31.8		TH-232	0.494
0	4655.34*	122	55.73	375.33	294	107	18.1		TH-230	1.51
0	4897.57*	288	40.40	461.37	400	135	11.8		TH229	3.60
0	5392.72*	31	22.95	639.12	552	109	37.1		TH-228	0.387
0	5854.74*	5349.12	807.33	751	129	96.3			TH-227	6.562E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:13:05

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$09_TH.CNF

BATCH ID: 0508094A-TH * SAMPLE ID: 09
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.007E+00 gram
SAMPLE TITLE: VPSCR081705SL06 * DETECTOR NUMBER: 010
ACQ DATE: 2-SEP-2005 08:10 * AVERAGE EFFICIENCY: 20.89%
ELAPSED LIVE TIME: 10207. * RECOVERY: 63.11%
TRACER ID: TH-18A * TRACER FWHM (kev): 147.20
LAMBDA VALUE: 454. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.213 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_010_26AUG05 * BKG ELAPSED TIME: 60004.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	3.75	4.25	97.5	7.672E-02	1.217E-01	2.515E-01
TH-228	5400.0	62.83	0.17	99.9	1.274E+00	3.924E-01	9.230E-02
TH229	4872.0	228.00	0.00	99.5	4.567E+00	7.395E-01	5.428E-02
TH-230	4672.0	187.64	1.36	99.8	3.747E+00	8.590E-01	1.624E-01
TH-232	3997.0	65.00	0.00	100.0	1.296E+00	3.943E-01	5.402E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst

Date

Reviewer

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$09_TH.CNF;1

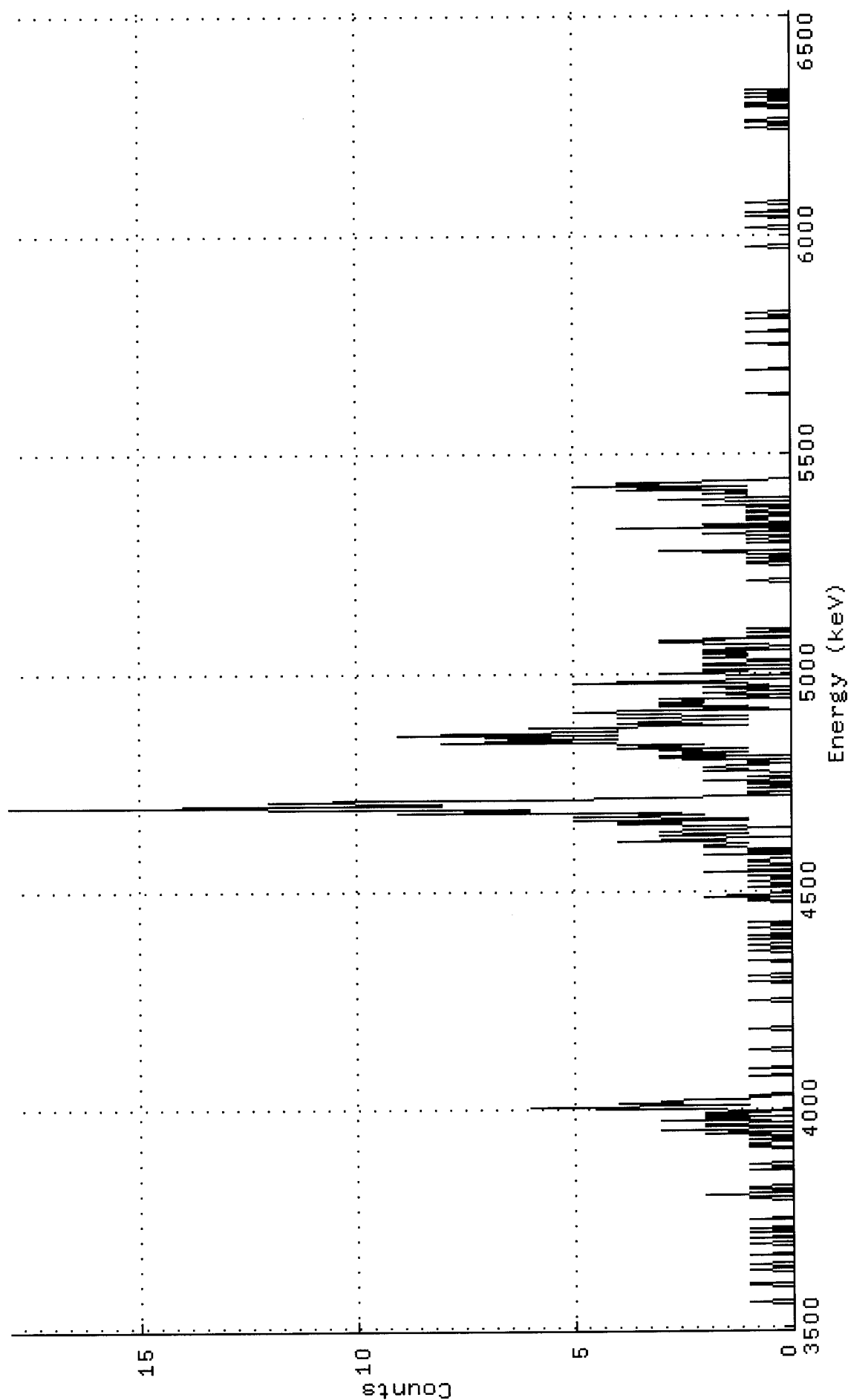
Title : 010

Sample Title: VPSCR081705SL06

Start Time: 2-SEP-2005 08:10: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.48087E+03

Real Time : 0 02:50:07.00 Sample ID : 09 Energy Slope : 3.09467E+00

Live Time : 0 02:50:07.00 Sample Type: TH Energy Quad : -1.36917E-04



Channel Contents for ND AMS ARCHIVE S:S 0508094A-TH\$09 TH

Channel

1:	10207	10207	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
43:	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0
57:	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
71:	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0
85:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	1	0	0	0	2	0	0	1	0	1	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
127:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
141:	0	1	1	1	0	0	1	0	0	2	1	0	3	2	0	0
155:	0	0	2	2	0	1	3	1	2	0	2	2	1	0	0	0
169:	3	3	6	1	4	3	3	2	1	1	0	1	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
197:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
267:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
281:	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
295:	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0
309:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	1	0	1	0	2	1	0	0	0	0	0	0	0
337:	1	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0
351:	0	0	1	0	1	1	1	0	0	0	0	2	0	0	0	0
365:	1	0	2	2	2	1	2	4	2	1	0	3	1	2	0	0
379:	3	2	2	0	2	3	4	4	1	5	1	5	5	2	0	0
393:	3	9	6	9	6	18	10	8	8	12	9	6	3	1	0	0
407:	0	1	1	0	0	0	1	0	0	1	0	2	1	0	0	0
421:	1	0	0	0	1	2	1	2	2	1	0	1	1	0	0	0
435:	2	3	0	3	2	1	2	3	1	4	3	2	6	8	0	0
449:	6	4	6	7	4	9	7	4	4	4	4	6	1	3	0	0
463:	4	3	2	1	4	1	2	3	5	3	0	1	3	1	0	0
477:	3	2	3	2	3	0	1	0	1	2	0	0	1	2	0	0
491:	0	1	1	5	3	0	0	0	0	3	3	1	2	0	0	0
505:	0	0	2	2	0	0	0	2	2	1	1	2	2	0	0	0
519:	2	1	0	0	1	3	2	3	0	2	0	0	0	0		

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:12:59.47

Detector ID: 10	Acquisition Start: 2-SEP-2005 08:10:59.01
Live Time: 0 02:50:07.00	Real Time: 0 02:50:07.00
Batch Id: 0508094A-TH	Sample Id: 09
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3974.44	65	0	12.25	160.63	104	99	6.37E-03	12.4	
2	0	4661.39	189	0	17.73	388.13	309	101	1.85E-02	7.3	
3	0	4895.97	228	0	147.20	466.92	410	127	2.23E-02	6.6	
4	0	5369.95	63	0	171.63	627.87	553	103	6.17E-03	12.6	
5	0	5901.67	8	0	0.00	811.37	741	123	7.84E-04	35.4	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:13:03.09

Live Time: 0 16:40:04.00	Acquisition Start: 26-AUG-2005 13:00:32.01
	Real Time: 0 16:40:04.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3951.15	0	0	0.00	153.00	104	99	0.00E+00	0.0	
2	0	4574.21	8	0	0.00	359.00	309	101	1.33E-04	35.4	
3	0	4914.02	0	0	0.00	473.00	410	127	0.00E+00	0.0	
4	0	5300.10	1	0	3.09	604.00	553	103	1.67E-05	100.0	
5	0	5874.73	25	0	4.07	802.00	741	123	4.17E-04	20.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:13:03.36

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3974.44*	65	0	12.25	160.63	104	99	6.37E-03	12.4	
2	0	4661.39*	188	0	17.73	388.13	309	101	1.84E-02	7.3	
3	0	4895.97*	228	0	147.20	466.92	410	127	2.23E-02	6.6	
4	0	5369.95*	63	0	171.63	627.87	553	103	6.16E-03	12.6	
5	0	5901.67*	4	0	0.00	811.37	741	123	3.67E-04	78.8	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL06
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:10:59
 Sample ID : 09 Sample quantity : 1.0074 gram
 Sample type : TH Sample geometry :
 Detector name : 010 Detector geometry:
 Elapsed live time: 0 02:50:07.00 Elapsed real time: 0 02:50:07.00 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3974.44*	65	12.25	160.63	104	99	24.8		TH-232	0.818
0	4661.39*	188	17.73	388.13	309	101	14.7		TH-230	2.36
0	4895.97*	228147.20	466.92	466.92	410	127	13.2		TH229	2.88
0	5369.95*	63171.63	627.87	627.87	553	103	25.3		TH-228	0.804
0	5901.67*	4	0.00	811.37	741	123157.6			TH-227	4.842E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:13:19

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$10_TH.CNF

*
BATCH ID: 0508094A-TH * SAMPLE ID: 10
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.005E+00 gram
SAMPLE TITLE: VPSCR081705SL07 * DETECTOR NUMBER: 011
ACQ DATE: 2-SEP-2005 08:11 * AVERAGE EFFICIENCY: 21.68%
ELAPSED LIVE TIME: 10205. * RECOVERY: 87.62%
TRACER ID: TH-18A * TRACER FWHM (kev): 95.80
LAMBDA VALUE: 454. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.213 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_011_26AUG05 * BKG ELAPSED TIME: 60001.

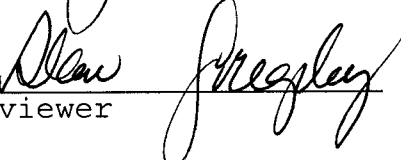
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	14.32	0.68	97.5	2.041E-01	1.156E-01	9.316E-02
TH-228	5400.0	58.32	0.68	99.9	8.231E-01	2.540E-01	9.089E-02
TH229	4872.0	328.32	0.68	99.5	4.578E+00	6.615E-01	9.127E-02
TH-230	4672.0	95.32	0.68	99.8	1.325E+00	3.456E-01	9.100E-02
TH-232	3997.0	54.66	0.34	100.0	7.585E-01	2.392E-01	7.524E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst 

9-2-05
Date

Reviewer 

9/2/05
Date

Spectrum : DKA100: [ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$10_TH.CNF;1

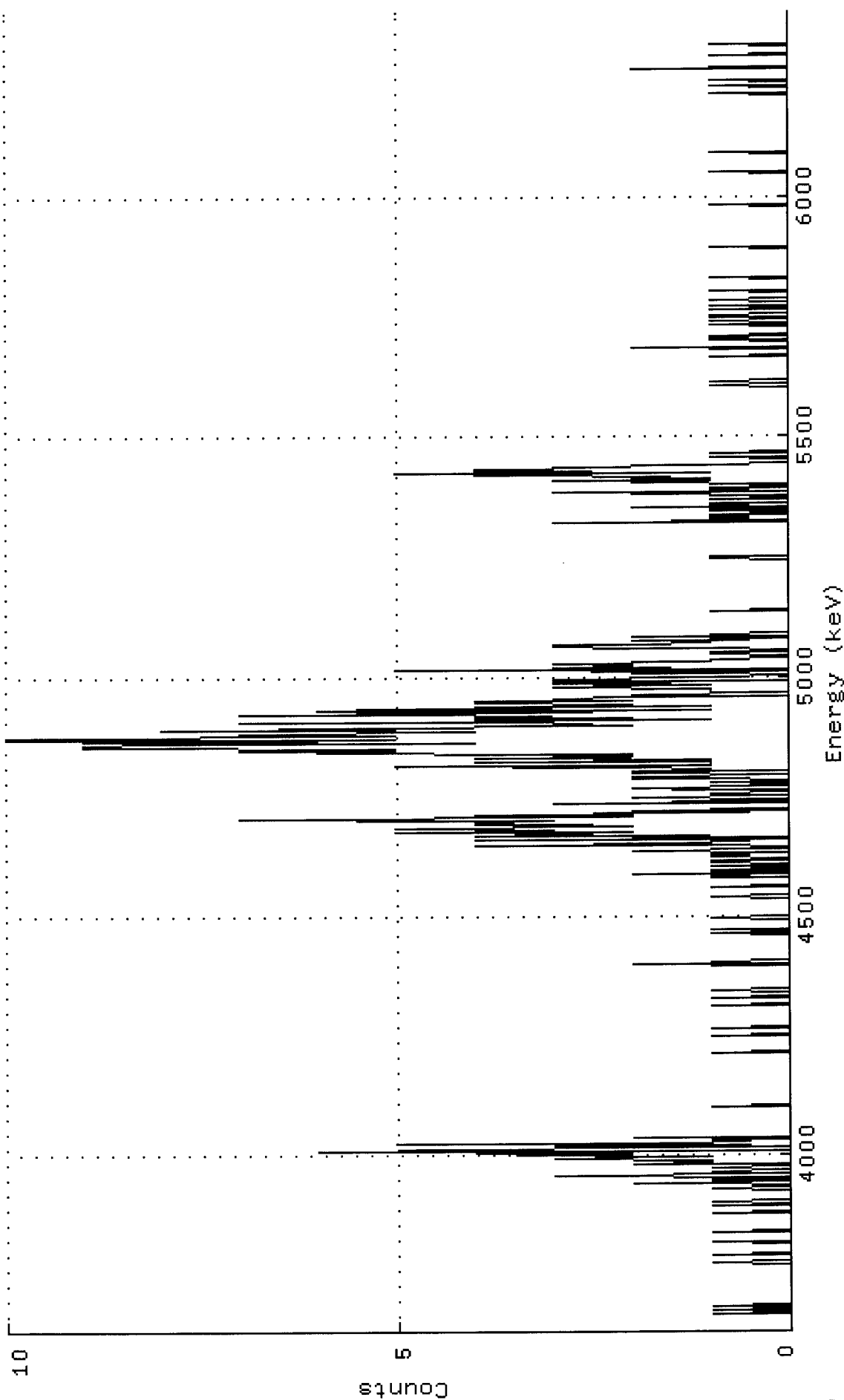
Title : 011

Sample Title: VPSCR081705SL07

Start Time: 2-SEP-2005 08:11: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.62203E+03

Real Time : 0 02:50:05.00 Sample ID : 10 Energy Slope : 2.82775E+00

Live Time : 0 02:50:05.00 Sample Type: TH Energy Quad : -1.28734E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-TH\$10_TH

Channel

1:	10205	10205	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	1	0	0	1	0	0	1	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
57:	0	0	0	1	0	0	0	0	0	0	0	0	1	0
71:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	1	0	0	0	0	0	1	0
99:	1	0	0	0	0	0	0	0	0	1	0	0	0	0
113:	1	2	0	1	0	0	3	0	0	1	0	0	1	0
127:	0	2	1	1	1	3	2	1	3	4	0	6	4	2
141:	0	1	5	1	1	0	2	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	1	0	0	0	0	0	0	0	0	0	0	0	0	1
225:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
253:	1	0	0	0	0	1	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	1	0	0	1	0	0	0	0
309:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	1	0	0	0	0	0	0	1
337:	1	0	0	0	0	0	0	1	1	0	2	0	0	1
351:	0	0	1	0	1	0	1	0	1	1	1	0	0	2
365:	0	1	0	1	4	1	1	0	4	0	2	4	3	2
379:	5	3	4	5	2	3	4	4	3	4	7	2	2	4
393:	1	0	2	0	0	0	0	0	3	0	0	0	2	0
407:	1	1	0	0	1	2	0	0	0	1	0	0	1	2
421:	2	0	0	2	0	2	1	2	5	1	1	1	4	1
435:	3	4	2	2	4	5	7	5	9	9	9	8	4	3
449:	8	10	5	10	5	7	7	4	6	8	5	3	2	3
463:	3	7	1	4	2	4	4	7	4	1	6	5	1	4
477:	2	4	4	2	3	2	0	2	0	1	1	1	1	3
491:	2	1	3	0	3	3	1	1	0	1	2	0	5	0
505:	3	2	2	3	1	1	1	0	0	0	1	0	1	0
519:	1	2	3	3	2	1	2	1	0	2	0	1	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	0	3	0	1	1	0	1	0	1	0	0	0	2	0
631:	1	1	0	0	0	1	0	0	1	1	3	0	1	1
645:	0	0	1	0	2	1	3	1	2	2	3	5	1	4
659:	4	3	3	1	1	0	0	0	0	1	0	0	0	1
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	1	0	0	1	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	1	0	0	0	0	0	0	2	0	0
757:	0	0	0	1	0	1	0	1	0	0	0	0	0	0
771:	0	1	0	0	1	1	0	1	0	1	0	0	0	0
785:	1	0	1	0	0	0	0	1	0	0	0	0	0	0
799:	1	0	0	0	0	0	0	0	0	0	0	1	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	1	0	0	0	0	0	1	0	0	0
967:	0	1	0	0	0	0	0	0	0	0	0	2	0	0
981:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
995:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:13:08.65

Detector ID: 11	Acquisition Start: 2-SEP-2005 08:11:18.01
Live Time: 0 02:50:05.00	Real Time: 0 02:50:05.00
Batch Id: 0508094A-TH	Sample Id: 10
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3984.82	55	0	23.59	129.05	63	108	5.39E-03	13.5	
2	0	4664.16	96	0	65.92	374.94	288	110	9.41E-03	10.2	
3	0	4900.40	329	0	95.80	461.79	398	139	3.22E-02	5.5	
4	0	5392.78	59	0	122.67	645.15	554	114	5.78E-03	13.0	
5	0	5797.64	15	0	376.09	798.40	761	135	1.47E-03	25.8	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:13:17.70

	Acquisition Start: 26-AUG-2005 13:00:35.01
Live Time: 0 16:40:01.00	Real Time: 0 16:40:01.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3949.72	2	0	158.35	116.50	63	108	3.33E-05	70.7	
2	0	4575.43	4	0	115.94	342.50	288	110	6.67E-05	50.0	
3	0	4914.51	4	0	234.70	467.00	398	139	6.67E-05	50.0	
4	0	5300.39	4	0	127.25	610.50	554	114	6.67E-05	50.0	
5	0	5875.15	4	0	226.22	828.00	761	135	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:13:17.99

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3984.82*	55	0	23.59	129.05	63	108	5.36E-03	13.6	
2	0	4664.16*	95	0	65.92	374.94	288	110	9.34E-03	10.3	
3	0	4900.40*	328	0	95.80	461.79	398	139	3.22E-02	5.5	
4	0	5392.78*	58	0	122.67	645.15	554	114	5.71E-03	13.2	
5	0	5797.64*	14	0	376.09	798.40	761	135	1.40E-03	27.2	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL07
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:11:18
 Sample ID : 10 Sample quantity : 1.0049 gram
 Sample type : TH Sample geometry :
 Detector name : 011 Detector geometry:
 Elapsed live time: 0 02:50:05.00 Elapsed real time: 0 02:50:05.00 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3984.82*	55	23.59	129.05	63	108	27.2		TH-232	0.665
0	4664.16*	95	65.92	374.94	288	110	20.6		TH-230	1.16
0	4900.40*	328	95.80	461.79	398	139	11.1		TH229	4.01
0	5392.78*	58122.67	645.15	554	114	26.4			TH-228	0.721
0	5797.64*	14376.09	798.40	761	135	54.3			TH-227	0.179

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ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:13:36

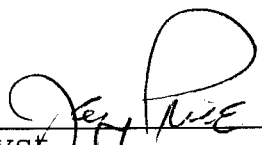
Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$11_TH.CNF

BATCH ID: 0508094A-TH * SAMPLE ID: 11
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.007E+00 gram
SAMPLE TITLE: VPSCR081705SL08 * DETECTOR NUMBER: 012
ACQ DATE: 2-SEP-2005 08:11 * AVERAGE EFFICIENCY: 21.19%
ELAPSED LIVE TIME: 10203. * RECOVERY: 93.63%
TRACER ID: TH-18A * TRACER FWHM (kev): 126.04
LAMBDA VALUE: 452. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.155 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_012_26AUG05 * BKG ELAPSED TIME: 60003.

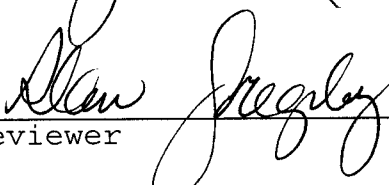
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	3.83	0.17	97.5	5.213E-02	5.527E-02	6.290E-02
TH-228	5400.0	58.81	1.19	99.9	7.927E-01	2.441E-01	1.032E-01
TH229	4872.0	341.00	0.00	99.5	4.541E+00	6.487E-01	3.609E-02
TH-230	4672.0	220.32	0.68	99.8	2.925E+00	6.098E-01	8.690E-02
TH-232	3997.0	63.83	0.17	100.0	8.459E-01	2.511E-01	6.133E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst 

Date 9/2/05

Reviewer 

Date 9/2/05

Spectrum : DKA100: [ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$11_TH.CNF;1

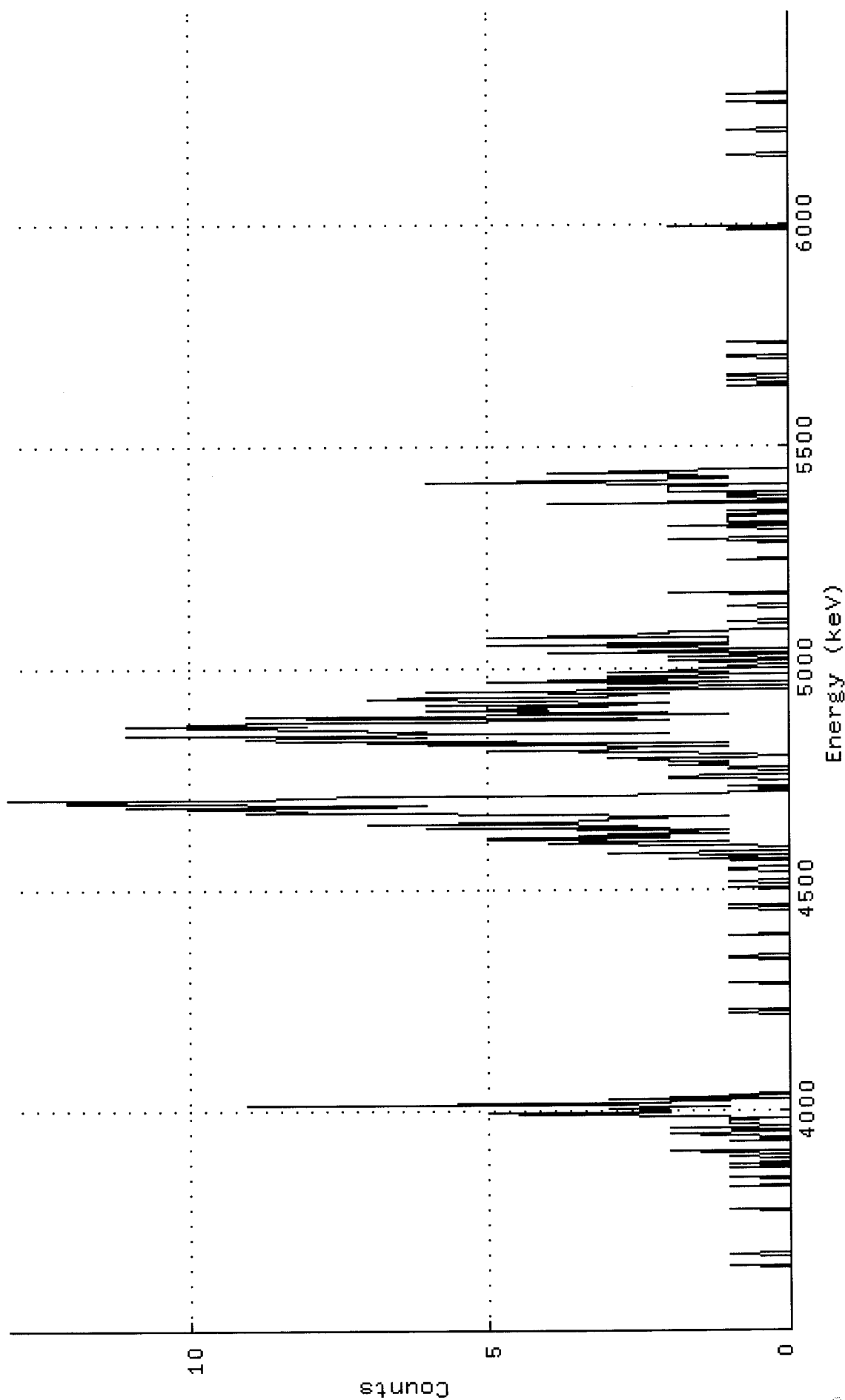
Title : 012

Sample Title: VPSCR081705SL08

Start Time: 2-SEP-2005 08:11: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.49250E+03

Real Time : 0 02:50:03.00 Sample ID : 11 Energy Slope : 3.08922E+00

Live Time : 0 02:50:03.00 Sample Type: TH Energy Quad : -1.73379E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-TH\$11_TH

Channel

1:	10203	10203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
57:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
113:	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
127:	1	0	0	0	0	1	0	0	0	1	2	0	0	0	0	0	0
141:	0	0	0	1	0	0	1	1	1	2	0	0	0	0	2	3	3
155:	0	1	1	1	1	0	0	1	1	4	5	1	0	0	0	0	0
169:	1	4	9	2	0	0	3	1	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
337:	0	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0
351:	0	0	0	0	2	0	1	0	0	0	3	0	0	0	0	0	0
365:	1	1	4	3	1	5	2	5	2	2	3	1	2	2	1	6	6
379:	2	3	4	7	4	3	3	3	1	2	8	4	7	3	9	8	8
393:	9	11	7	6	12	12	11	13	9	0	1	2	2	3	2	0	0
407:	1	0	0	1	0	0	0	0	0	0	1	2	2	2	1	0	0
421:	0	0	0	1	0	0	2	1	1	1	2	2	2	3	1	0	0
435:	1	1	2	5	3	3	2	1	5	7	1	1	8	9	8	2	8
449:	6	11	2	6	6	8	7	10	8	11	9	9	9	8	2	5	2
463:	3	7	9	1	1	3	6	4	5	3	6	3	3	2	0	3	3
477:	4	7	6	3	3	2	2	6	1	0	3	0	0	0	1	0	0
491:	0	5	3	1	3	3	0	3	1	2	4	1	1	0	1	3	3
505:	0	1	2	0	0	1	2	0	0	0	2	1	1	0	0	0	0
519:	1	5	1	1	1	1	1	5	3	2	2	2	2	0	0	0	0
533:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	1	1
603:	0	0	0	0	0	0	0	1	0	2	0	0	0	0	1	4	4
617:	1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0
631:	0	0	0	1	1	0	1	0	2	2	2	2	2	2	0	0	0
645:	0	6	3	3	1	2	1	2	2	4	2	1	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
729:	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
953:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:13:23.26

Detector ID: 12	Acquisition Start: 2-SEP-2005 08:11:36.01
Live Time: 0 02:50:03.00	Real Time: 0 02:50:03.00
Batch Id: 0508094A-TH	Sample Id: 11
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3983.38	64	0	25.08	160.34	100	100	6.27E-03	12.5	
2	0	4664.03	221	0	65.70	387.67	307	102	2.17E-02	6.7	
3	0	4899.50	341	0	126.04	467.73	409	129	3.34E-02	5.4	
4	0	5382.14	60	0	76.31	634.27	554	105	5.88E-03	12.9	
5	0	5923.80	4	0	3.09	825.25	746	125	3.92E-04	50.0	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:13:34.14

Live Time: 0 16:40:03.00	Acquisition Start: 26-AUG-2005 13:00:38.01
	Real Time: 0 16:40:03.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.47	1	0	3.09	149.50	100	100	1.67E-05	100.0	
2	0	4574.74	4	0	256.40	357.50	307	102	6.67E-05	50.0	
3	0	4914.91	0	0	0.00	473.00	409	129	0.00E+00	0.0	
4	0	5300.90	7	0	0.00	606.00	554	105	1.17E-04	37.8	
5	0	5875.40	1	0	3.09	808.00	746	125	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:13:34.71

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3983.38*	64	0	25.08	160.34	100	100	6.26E-03	12.5	
2	0	4664.03*	220	0	65.70	387.67	307	102	2.16E-02	6.7	
3	0	4899.50*	341	0	126.04	467.73	409	129	3.34E-02	5.4	
4	0	5382.14*	59	0	76.31	634.27	554	105	5.76E-03	13.2	
5	0	5923.80*	4	0	3.09	825.25	746	125	3.75E-04	52.4	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL08
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:11:36
 Sample ID : 11 Sample quantity : 1.0073 gram
 Sample type : TH Sample geometry :
 Detector name : 012 Detector geometry:
 Elapsed live time: 0 02:50:03.00 Elapsed real time: 0 02:50:03.00 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3983.38*	64	25.08	160.34	100	100	25.1		TH-232	0.792
0	4664.03*	220	65.70	387.67	307	102	13.5		TH-230	2.74
0	4899.50*	341	126.04	467.73	409	129	10.8		TH229	4.25
0	5382.14*	59	76.31	634.27	554	105	26.4		TH-228	0.742
0	5923.80*	4	3.09	825.25	746	125	104.8		TH-227	4.881E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:13:55

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$12_TH.CNF

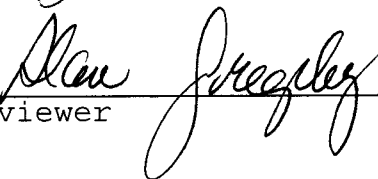
*
BATCH ID: 0508094A-TH * SAMPLE ID: 12
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.057E+00 gram
SAMPLE TITLE: VPSCR081705SL09 * DETECTOR NUMBER: 013
ACQ DATE: 2-SEP-2005 08:11 * AVERAGE EFFICIENCY: 21.28%
ELAPSED LIVE TIME: 10200. * RECOVERY: 76.45%
TRACER ID: TH-18A * TRACER FWHM (kev): 47.25
LAMBDA VALUE: 454. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.202 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_013_26AUG05 * BKG ELAPSED TIME: 60004.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	7.32	0.68	97.5	1.158E-01	9.221E-02	1.034E-01
TH-228	5400.0	68.49	0.51	99.9	1.073E+00	3.160E-01	9.298E-02
TH229	4872.0	280.83	0.17	99.5	4.348E+00	6.584E-01	7.164E-02
TH-230	4672.0	128.32	0.68	99.8	1.981E+00	4.817E-01	1.010E-01
TH-232	3997.0	47.98	1.02	100.0	7.393E-01	2.487E-01	1.141E-01

Analyst 

9/2/05
Date

Reviewer 

9/2/05
Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$12_TH.CNF;1

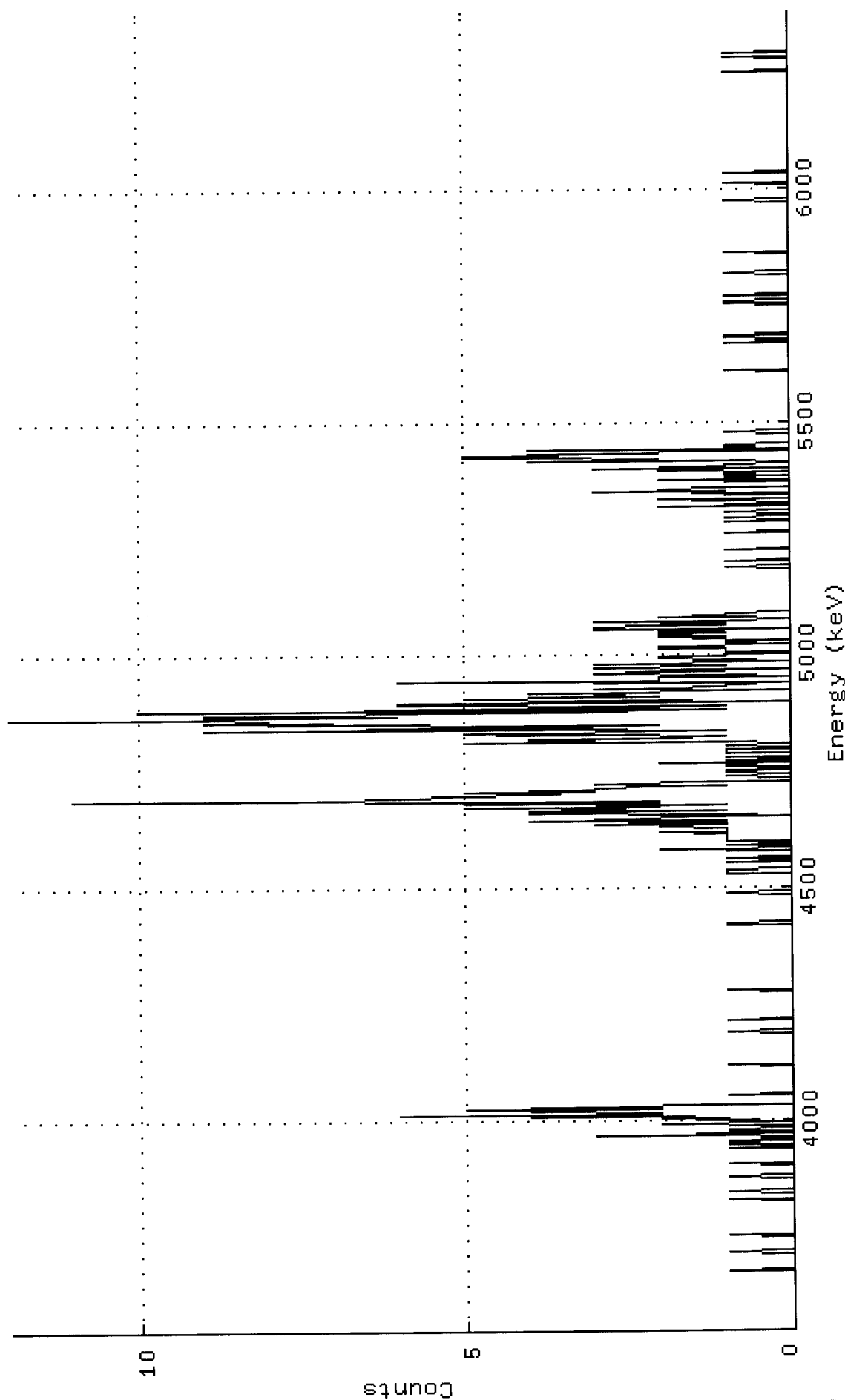
Title : 013

Sample Title: VPSCR081705SL09

Start Time: 2-SEP-2005 08:11: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.53324E+03

Real Time : 0 02:50:00.00 Sample ID : 12 Energy Slope : 2.92594E+00

Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.42788E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-TH\$12_TH

Channel

1:	10200	10200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
127:	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
141:	1	0	1	0	1	0	0	1	3	0	0	0	1	1	4	2	0
155:	0	0	2	0	0	1	2	1	2	6	2	2	2	0	0	0	0
169:	5	3	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225:	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
295:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
337:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1
351:	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2	1
365:	1	0	0	1	0	0	1	1	1	1	1	1	1	1	2	1	4
379:	1	1	1	2	1	3	1	4	1	1	3	1	0	0	1	5	5
393:	1	4	3	2	5	3	2	3	5	2	11	7	6	5	0	1	1
407:	4	3	5	3	3	2	1	3	1	0	0	0	0	0	0	1	3
421:	0	0	1	0	1	0	1	0	1	0	2	0	0	5	1	7	6
435:	0	0	0	1	1	1	0	0	1	1	0	0	1	8	3	7	6
449:	4	2	1	3	4	5	1	4	9	4	10	3	1	2	1	1	1
463:	9	8	9	12	6	9	9	4	1	3	3	2	2	2	1	3	1
477:	6	0	3	5	3	2	3	2	4	0	3	2	0	1	1	2	1
491:	1	0	6	2	2	2	0	1	3	3	2	0	1	1	1	2	1
505:	1	1	3	0	1	1	2	1	2	1	2	2	2	1	1	2	0
519:	2	2	0	1	1	0	1	1	2	1	1	2	2	1	1	0	0
533:	0	3	3	2	1	1	3	1	0	1	2	1	1	1	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
589:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
617:	1	0	1	1	0	0	0	1	0	0	0	0	0	2	1	0	0
631:	0	0	1	2	0	0	0	1	0	3	1	2	2	1	0	0	0
645:	0	0	0	0	2	0	1	1	0	1	1	0	0	2	0	0	0
659:	3	1	1	1	0	1	4	2	4	5	5	2	4	0	0	0	0
673:	4	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
687:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:13:40.40

Detector ID: 13	Acquisition Start: 2-SEP-2005 08:11:55.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.00
Batch Id: 0508094A-TH	Sample Id: 12
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3988.03	49	0	19.75	156.63	92	105	4.80E-03	14.3	
2	0	4664.17	129	0	8.71	394.10	309	108	1.26E-02	8.8	
3	0	4901.10	281	0	47.25	478.68	416	135	2.75E-02	6.0	
4	0	5383.58	69	0	98.03	653.22	568	110	6.76E-03	12.0	
5	0	5871.13	8	0	310.15	832.87	769	132	7.84E-04	35.4	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:13:53.02

	Acquisition Start: 26-AUG-2005 13:00:40.01
Live Time: 0 16:40:04.00	Real Time: 0 16:40:04.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3951.61	6	0	248.71	144.00	92	105	1.00E-04	40.8	
2	0	4575.13	4	0	242.85	362.50	309	108	6.67E-05	50.0	
3	0	4913.15	1	0	2.93	483.00	416	135	1.67E-05	100.0	
4	0	5299.30	3	0	61.44	622.50	568	110	5.00E-05	57.7	
5	0	5875.50	4	0	0.00	834.50	769	132	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:13:53.30

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3988.03*	48	0	19.75	156.63	92	105	4.70E-03	14.6	
2	0	4664.17*	128	0	8.71	394.10	309	108	1.26E-02	8.9	
3	0	4901.10*	281	0	47.25	478.68	416	135	2.75E-02	6.0	
4	0	5383.58*	68	0	98.03	653.22	568	110	6.71E-03	12.1	
5	0	5871.13*	7	0	310.15	832.87	769	132	7.18E-04	38.9	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL09
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:11:55
Sample ID        : 12 Sample quantity : 1.0569 gram
Sample type      : TH Sample geometry :
Detector name    : 013 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.00 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type  : Average value Efficiencies at : Peak Energy
Abundance limit  : 75.00
  
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3988.03*	48	19.75	156.63	92	105	29.2		TH-232	0.565
0	4664.17*	128	8.71	394.10	309	108	17.7		TH-230	1.51
0	4901.10*	281	47.25	478.68	416	135	11.9		TH229	3.32
0	5383.58*	68	98.03	653.22	568	110	24.3		TH-228	0.821
0	5871.13*	7310.15	832.87	769	132	77.8			TH-227	8.857E-02

Eberline Services
Oak Ridge Laboratory


ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:14:13

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$13_TH.CNF

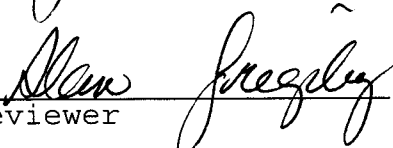
BATCH ID: 0508094A-TH * SAMPLE ID: 13
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 9.981E-01 gram
SAMPLE TITLE: VPSCR081705SL10 * DETECTOR NUMBER: 014
ACQ DATE: 2-SEP-2005 08:12 * AVERAGE EFFICIENCY: 20.63%
ELAPSED LIVE TIME: 10203. * RECOVERY: 86.34%
TRACER ID: TH-18A * TRACER FWHM (kev): 56.55
LAMBDA VALUE: 453. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.184 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_014_26AUG05 * BKG ELAPSED TIME: 60001.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	5.79	2.21	97.5	8.860E-02	8.975E-02	1.471E-01
TH-228	5400.0	69.96	2.04	99.9	1.060E+00	3.104E-01	1.394E-01
TH229	4872.0	306.98	1.02	99.5	4.596E+00	6.780E-01	1.109E-01
TH-230	4672.0	246.66	0.34	99.8	3.682E+00	7.621E-01	8.093E-02
TH-232	3997.0	85.83	0.17	100.0	1.279E+00	3.463E-01	6.895E-02


Analyst

9-2-05
Date


Reviewer

9/2/05
Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$13_TH.CNF;1

Title : 014

Sample Title: VPSCR081705SL10

Start Time: 2-SEP-2005 08:12:

Real Time : 0 02:50:03.00

Live Time : 0 02:50:03.00

Sample Time: 17-AUG-2005 00:00

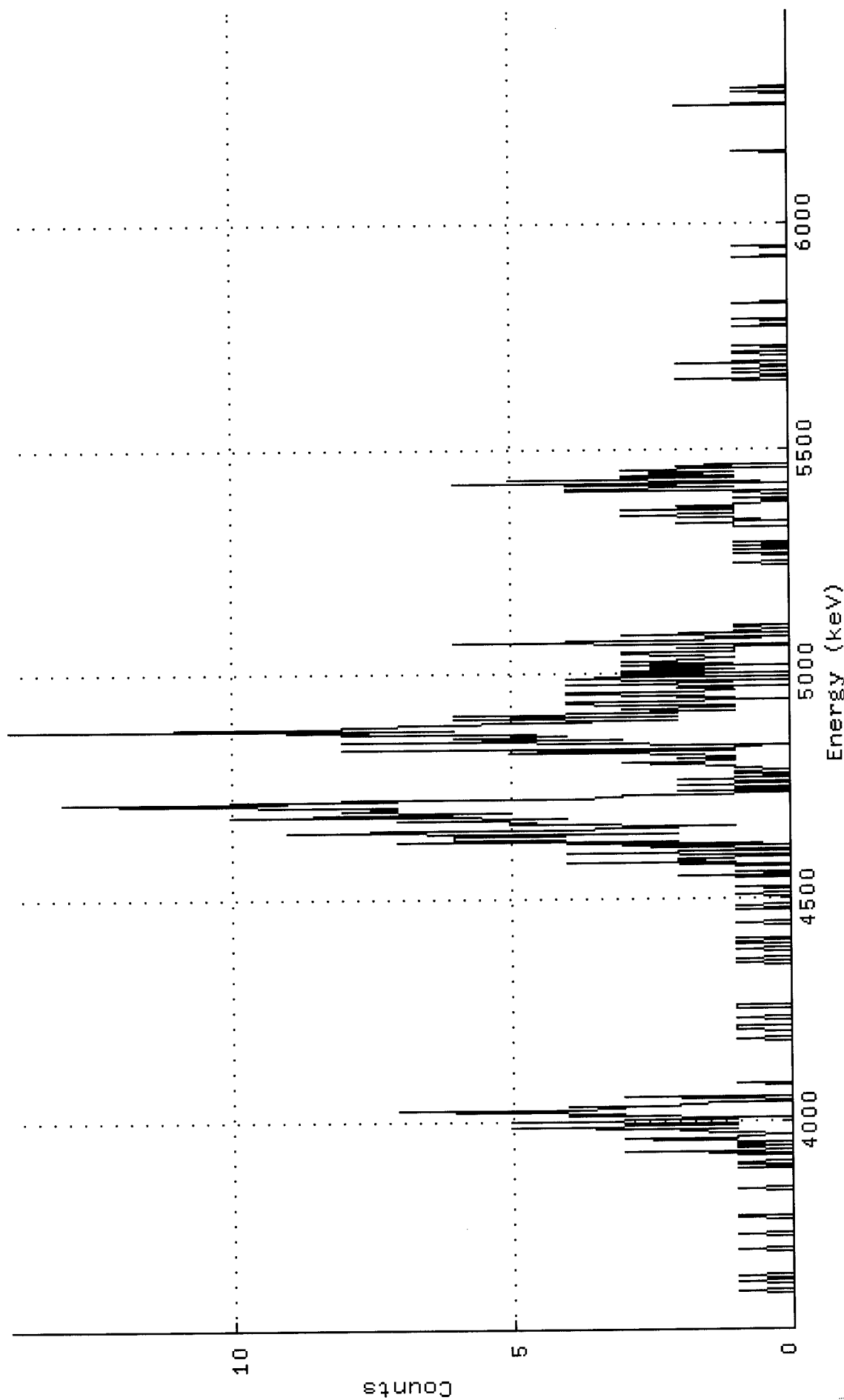
Sample ID : 13

Sample Type: TH

Energy Offset: 3.52523E+03

Energy Slope : 3.03541E+00

Energy Quad : -1.57707E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-TH\$13_TH

Channel

1:	10203	10203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
71:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
127:	1	0	0	0	0	0	0	1	0	3	1	0	1	1	1	1	0
141:	1	0	0	2	3	1	1	0	1	1	1	2	1	2	2	5	3
155:	1	1	1	5	1	2	0	4	4	3	3	5	7	0	0	0	0
169:	4	2	2	1	0	0	1	3	0	0	0	0	0	0	0	0	0
183:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
225:	0	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0
239:	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
281:	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0
295:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
309:	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
323:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0
351:	1	0	4	1	2	2	2	0	0	0	0	4	0	2	2	0	0
365:	2	3	0	1	7	2	6	6	6	6	6	2	4	9	6	6	0
379:	4	3	1	5	4	5	5	7	4	7	7	10	5	2	6	0	1
393:	8	7	7	7	12	9	13	7	8	4	3	3	3	2	0	1	1
407:	0	2	0	0	0	2	0	0	0	2	2	0	1	0	0	0	0
421:	0	1	0	0	1	1	1	2	3	2	2	1	2	1	1	1	0
435:	2	3	5	1	8	1	1	0	1	4	5	8	3	2	6	2	2
449:	6	4	5	7	9	6	14	8	8	6	6	5	5	4	4	2	2
463:	6	2	4	6	2	4	1	3	3	1	1	3	4	2	4	2	3
477:	3	0	2	1	2	4	4	2	1	2	2	2	0	4	2	2	0
491:	2	0	2	4	3	0	3	3	0	3	3	2	1	2	3	2	0
505:	0	2	3	2	2	1	1	2	3	3	3	1	1	1	1	0	0
519:	0	0	1	6	2	2	1	0	0	0	3	1	0	1	0	0	0
533:	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
589:	0	1	0	0	0	1	0	1	0	0	1	1	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	1	1	1	1	2	1	0	0
617:	1	1	1	3	1	1	1	1	3	0	4	4	1	2	2	0	0
631:	0	0	1	0	0	0	0	1	0	1	2	2	3	1	0	0	0
645:	6	0	1	4	5	1	1	3	2	1	0	0	0	0	0	0	0
659:	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0
743:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
827:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
953:	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:13:59.06

Detector ID: 14 Acquisition Start: 2-SEP-2005 08:12:16.01

Live Time: 0 02:50:03.00 Real Time: 0 02:50:03.00

Batch Id: 0508094A-TH Sample Id: 13

Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3998.74	86	0	47.78	157.28	91	101	8.43E-03	10.8	
2	0	4665.39	247	0	98.49	383.25	301	104	2.42E-02	6.4	
3	0	4907.93	308	0	56.55	466.84	404	131	3.02E-02	5.7	
4	0	5388.62	72	0	29.56	634.82	551	106	7.06E-03	11.8	
5	0	5797.60	8	0	260.67	780.25	745	127	7.84E-04	35.4	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:14:11.49

Acquisition Start: 26-AUG-2005 13:00:43.01

Live Time: 0 16:40:01.00 Real Time: 0 16:40:01.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.09	1	0	3.04	141.00	91	101	1.67E-05	100.0	
2	0	4575.62	2	0	5.69	352.50	301	104	3.33E-05	70.7	
3	0	4914.15	6	0	294.43	469.00	404	131	1.00E-04	40.8	
4	0	5299.66	12	0	218.55	603.50	551	106	2.00E-04	28.9	
5	0	5874.88	13	0	12.09	808.00	745	127	2.17E-04	27.7	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:14:11.79

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3998.74*	86	0	47.78	157.28	91	101	8.41E-03	10.8	
2	0	4665.39*	247	0	98.49	383.25	301	104	2.42E-02	6.4	
3	0	4907.93*	307	0	56.55	466.84	404	131	3.01E-02	5.7	
4	0	5388.62*	70	0	29.56	634.82	551	106	6.86E-03	12.2	
5	0	5797.60*	6	0	260.67	780.25	745	127	5.67E-04	50.0	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL10
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:12:16
 Sample ID : 13 Sample quantity : 0.99810 gram
 Sample type : TH Sample geometry :
 Detector name : 014 Detector geometry:
 Elapsed live time: 0 02:50:03.00 Elapsed real time: 0 02:50:03.00 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3998.74*	86	47.78	157.28	91	101	21.6		TH-232	1.10
0	4665.39*	247	98.49	383.25	301	104	12.7		TH-230	3.18
0	4907.93*	307	56.55	466.84	404	131	11.4		TH229	3.97
0	5388.62*	70	29.56	634.82	551	106	24.3		TH-228	0.915
0	5797.60*	6260.67	780.25	745	127	100.0			TH-227	7.650E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:14:30

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$14_TH.CNF


BATCH ID: 0508094A-TH * SAMPLE ID: 14
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 9.901E-01 gram
SAMPLE TITLE: VPSCR081705SL11 * DETECTOR NUMBER: 015
ACQ DATE: 2-SEP-2005 08:12 * AVERAGE EFFICIENCY: 21.46%
ELAPSED LIVE TIME: 10200. * RECOVERY: 71.31%
TRACER ID: TH-18A * TRACER FWHM (kev): 36.74
LAMBDA VALUE: 452. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.162 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_015_26AUG05 * BKG ELAPSED TIME: 60001.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	7.32	0.68	97.5	1.315E-01	1.047E-01	1.174E-01
TH-228	5400.0	21.32	0.68	99.9	3.791E-01	1.792E-01	1.145E-01
TH229	4872.0	263.13	1.87	99.5	4.623E+00	7.162E-01	1.593E-01
TH-230	4672.0	75.45	2.55	99.8	1.322E+00	3.829E-01	1.775E-01
TH-232	3997.0	29.15	0.85	100.0	5.097E-01	2.106E-01	1.223E-01


Analyst

9-2-05
Date


Reviewer

9/2/05
Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$14_TH.CNF;1

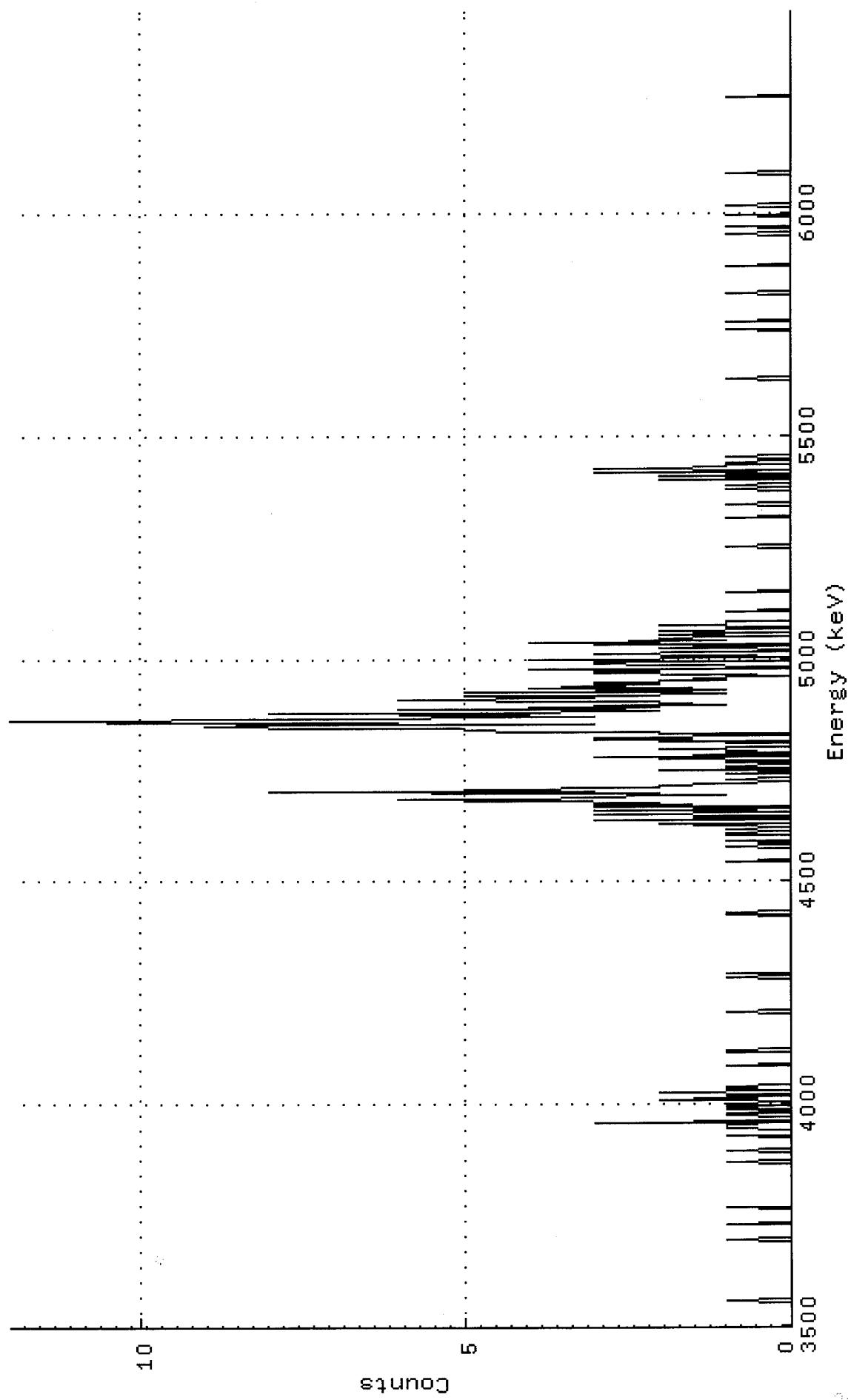
Title : 015

Sample Title: VPSCR081705SL11

Start Time: 2-SEP-2005 08:12: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.48465E+03

Real Time : 0 02:50:00.00 Sample ID : 14 Energy Slope : 3.03269E+00

Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.32067E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-TH\$14_TH

Channel

1:	10200	10200	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
71:	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
85:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
127:	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
141:	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1
155:	1	0	3	0	0	0	0	0	1	0	1	0	0	0	1
169:	0	1	1	0	1	2	1	0	1	0	2	2	0	0	1
183:	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
211:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
267:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
365:	0	1	0	0	0	1	0	0	0	0	1	1	0	0	0
379:	1	0	0	1	2	0	0	0	3	0	0	0	3	2	0
393:	1	3	0	3	0	3	3	2	4	6	4	3	0	1	0
407:	3	8	3	5	2	2	2	1	0	0	1	0	0	0	0
421:	0	1	0	0	2	0	1	1	0	1	0	0	2	0	0
435:	3	0	1	0	1	1	2	0	0	0	0	2	0	0	3
449:	2	3	0	2	0	4	5	5	7	9	8	3	9	12	12
463:	11	8	3	5	4	8	5	2	3	6	2	3	1	2	2
477:	2	3	6	3	5	3	1	2	5	1	2	4	3	2	0
491:	3	3	1	2	1	1	0	1	3	3	2	4	0	0	1
505:	2	2	3	3	0	4	0	1	1	3	1	0	0	0	2
519:	2	0	3	0	4	1	1	2	1	0	2	1	0	0	0
533:	0	0	0	2	1	1	1	0	0	0	0	0	0	0	0
547:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
631:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
645:	1	0	0	0	0	2	0	0	2	0	1	3	0	0	3
659:	2	1	1	0	1	0	0	0	1	1	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
771:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
855:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:14:17.14

Detector ID: 15	Acquisition Start: 2-SEP-2005 08:12:35.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.00
Batch Id: 0508094A-TH	Sample Id: 14
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3982.54	30	0	72.03	165.37	104	102	2.94E-03	18.3	
2	0	4672.58	78	0	28.31	398.63	314	104	7.65E-03	11.3	
3	0	4899.11	265	0	36.74	476.28	417	130	2.60E-02	6.1	
4	0	5400.88	22	0	29.51	650.27	563	105	2.16E-03	21.3	
5	0	5889.34	8	0	303.27	822.37	755	126	7.84E-04	35.4	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:14:28.82

	Acquisition Start: 26-AUG-2005 13:00:46.01
Live Time: 0 16:40:01.00	Real Time: 0 16:40:01.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.05	5	0	294.17	154.50	104	102	8.33E-05	44.7	
2	0	4575.45	15	0	279.01	365.50	314	104	2.50E-04	25.8	
3	0	4914.27	11	0	360.89	481.50	417	130	1.83E-04	30.2	
4	0	5299.80	4	0	291.14	615.00	563	105	6.67E-05	50.0	
5	0	5875.61	4	0	106.14	817.50	755	126	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:14:29.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3982.54*	29	0	72.03	165.37	104	102	2.86E-03	18.8	
2	0	4672.58*	75	0	28.31	398.63	314	104	7.40E-03	11.7	
3	0	4899.11*	263	0	36.74	476.28	417	130	2.58E-02	6.2	
4	0	5400.88*	21	0	29.51	650.27	563	105	2.09E-03	22.1	
5	0	5889.34*	7	0	303.27	822.37	755	126	7.18E-04	38.9	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL11
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:12:35
 Sample ID : 14 Sample quantity : 0.99010 gram
 Sample type : TH Sample geometry :
 Detector name : 015 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.00 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3982.54*	29	72.03	165.37	104	102	37.7		TH-232	0.363
0	4672.58*	75	28.31	398.63	314	104	23.5		TH-230	0.942
0	4899.11*	263	36.74	476.28	417	130	12.4		TH229	3.30
0	5400.88*	21	29.51	650.27	563	105	44.1		TH-228	0.270
0	5889.34*	7303.27	822.37	755	126	77.8			TH-227	9.374E-02

Eberline Services
Oak Ridge Laboratory


ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:14:46

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$15_TH.CNF

*
BATCH ID: 0508094A-TH * SAMPLE ID: 15
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 9.961E-01 gram
SAMPLE TITLE: VPSCR081705SL12 * DETECTOR NUMBER: 016
ACQ DATE: 2-SEP-2005 08:12 * AVERAGE EFFICIENCY: 20.92%
ELAPSED LIVE TIME: 10205. * RECOVERY: 83.30%
TRACER ID: TH-18A * TRACER FWHM (kev): 76.19
LAMBDA VALUE: 453. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.193 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 04:24 * EFF CAL DATE: 24-AUG-2005 04:24
BKG FILENAME: B_016_26AUG05 * BKG ELAPSED TIME: 60002.


NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	0.60	3.40	97.5	9.379E-03	6.709E-02	1.766E-01
TH-228	5400.0	27.28	2.72	99.9	4.233E-01	1.848E-01	1.585E-01
TH229	4872.0	300.64	1.36	99.5	4.609E+00	6.845E-01	1.247E-01
TH-230	4672.0	76.98	1.02	99.8	1.177E+00	3.321E-01	1.132E-01
TH-232	3997.0	36.66	0.34	100.0	5.594E-01	2.072E-01	8.273E-02



Analyst

9/2/05
Date



Reviewer

9/2/05
Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$15_TH.CNF;1

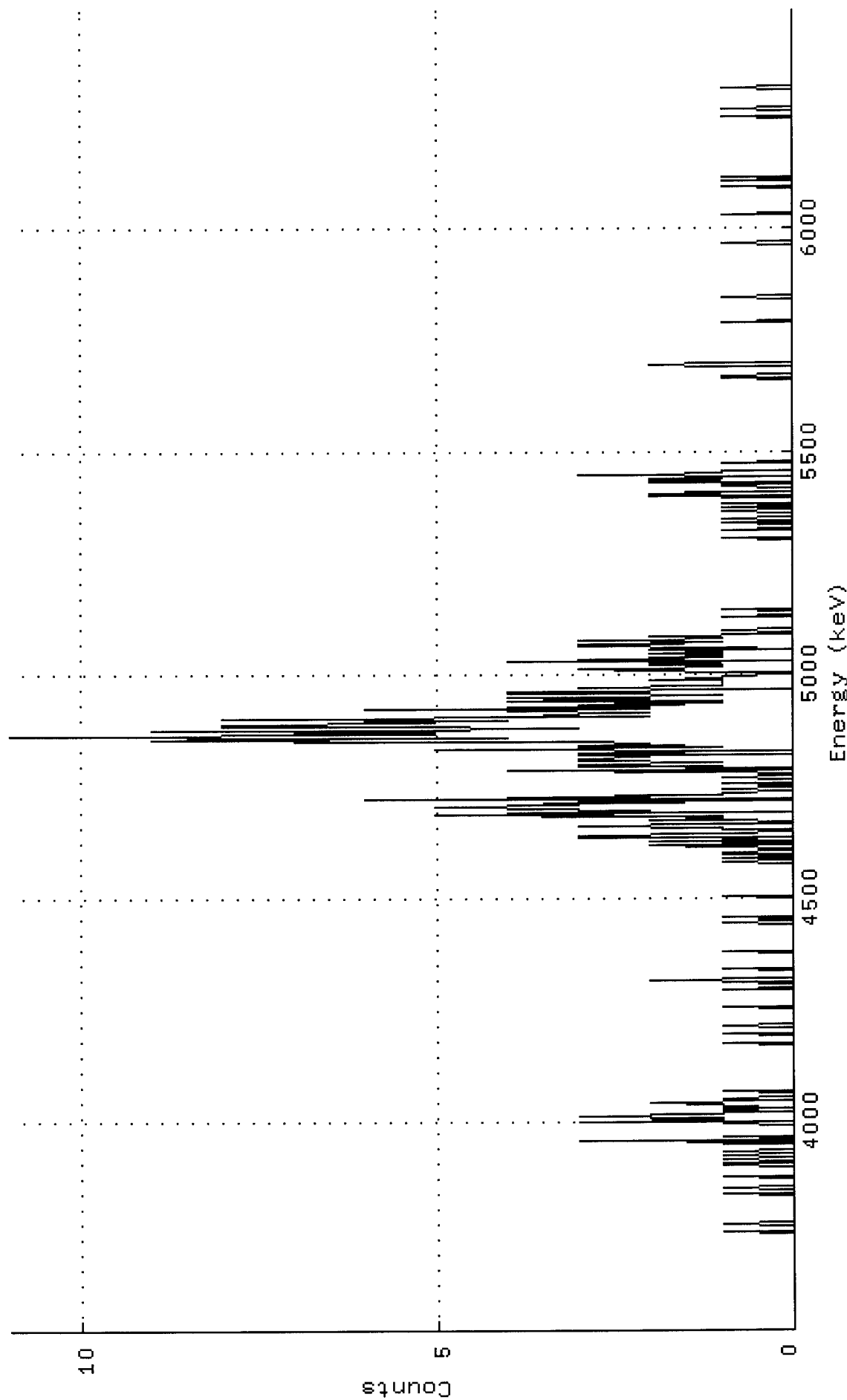
Title : 016

Sample Title: VPSCR081705SL12

Start Time: 2-SEP-2005 08:12: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.51749E+03

Real Time : 0 02:50:05.00 Sample ID : 15 Energy Slope : 3.04800E+00

Live Time : 0 02:50:05.00 Sample Type: TH Energy Quad : -1.46731E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-TH\$15_TH

Channel

1:	10205	10205	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
113:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
127:	0	1	0	1	0	0	1	0	0	1	0	0	0	0	0	0
141:	0	1	0	3	0	0	1	0	0	0	0	0	0	0	0	0
155:	0	0	1	0	3	1	2	1	3	1	2	0	0	1	1	0
169:	0	1	1	1	2	0	1	1	0	0	0	0	0	0	1	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
225:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	1	0	0	0	0	0	1	0	2	0	0
267:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
309:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	1	1	0	0	1	0	0	1	1	0	0	0	0
365:	0	1	2	0	0	2	0	1	0	3	3	1	1	1	0	0
379:	0	1	1	3	1	0	0	1	2	1	1	2	5	1	1	0
393:	4	2	4	3	5	3	4	3	0	6	0	4	1	1	1	0
407:	1	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0
421:	0	0	1	4	0	0	3	1	3	1	1	3	3	3	3	0
435:	2	3	0	3	0	5	5	1	2	3	6	8	3	5	6	0
449:	4	6	11	5	6	5	9	6	3	6	8	8	3	5	6	0
463:	4	8	2	4	3	3	2	4	2	6	2	3	2	1	1	0
477:	4	1	3	4	3	1	3	4	4	0	1	3	1	1	1	0
491:	1	1	1	2	1	1	1	0	0	1	2	3	2	2	1	0
505:	1	2	2	0	4	2	1	2	1	2	0	1	1	0	1	0
519:	1	3	3	2	1	3	2	1	2	2	0	0	0	0	1	0
533:	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
547:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	1	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0
617:	0	1	1	0	0	0	0	1	1	0	0	0	0	1	1	0
631:	0	0	0	0	0	2	0	2	1	0	0	0	0	1	1	0
645:	0	2	0	2	1	2	0	3	2	1	1	0	0	0	0	0
659:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	1	0	1	0	0	0	0	0	0	0	1	2	1	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
883:	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
939:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:14:34.26

Detector ID: 16	Acquisition Start: 2-SEP-2005 08:12:54.01
Live Time: 0 02:50:05.00	Real Time: 0 02:50:05.00
Batch Id: 0508094A-TH	Sample Id: 15
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3982.84	37	0	90.68	153.81	93	101	3.63E-03	16.4	
2	0	4669.71	78	0	0.00	385.17	302	103	7.64E-03	11.3	
3	0	4906.22	302	0	76.19	466.08	404	130	2.96E-02	5.8	
4	0	5403.72	30	0	53.82	638.47	550	106	2.94E-03	18.3	
5	0	5905.55	4	0	262.13	815.50	743	125	3.92E-04	50.0	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:14:44.10

	Acquisition Start: 26-AUG-2005 13:00:48.01
Live Time: 0 16:40:02.00	Real Time: 0 16:40:02.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.36	2	0	115.82	143.00	93	101	3.33E-05	70.7	
2	0	4575.15	6	0	289.56	353.00	302	103	1.00E-04	40.8	
3	0	4913.27	8	0	350.52	468.50	404	130	1.33E-04	35.4	
4	0	5300.65	16	0	0.00	602.50	550	106	2.67E-04	25.0	
5	0	5876.04	20	0	6.10	805.00	743	125	3.33E-04	22.4	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:14:44.67

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3982.84*	37	0	90.68	153.81	93	101	3.59E-03	16.6	
2	0	4669.71*	77	0	0.00	385.17	302	103	7.54E-03	11.5	
3	0	4906.22*	301	0	76.19	466.08	404	130	2.95E-02	5.8	
4	0	5403.72*	27	0	53.82	638.47	550	106	2.67E-03	20.2	
5	0	5905.55*	1	0	262.13	815.50	743	125	5.86E-05	357.6	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL12
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:12:54
 Sample ID : 15 Sample quantity : 0.99610 gram
 Sample type : TH Sample geometry :
 Detector name : 016 Detector geometry:
 Elapsed live time: 0 02:50:05.00 Elapsed real time: 0 02:50:05.00 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3982.84*	37	90.68	153.81	93	101	33.2		TH-232	0.466
0	4669.71*	77	0.00	385.17	302	103	23.0		TH-230	0.980
0	4906.22*	301	76.19	466.08	404	130	11.6		TH229	3.84
0	5403.72*	27	53.82	638.47	550	106	40.5		TH-228	0.353
0	5905.55*	1262.13	815.50	743	1257	15.1			TH-227	7.813E-03

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:41:34

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$16_TH.CNF

*
BATCH ID: 0508094A-TH * SAMPLE ID: 16
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.038E+00 gram
SAMPLE TITLE: VPSCR081705SL13 * DETECTOR NUMBER: 017
ACQ DATE: 2-SEP-2005 08:50 * AVERAGE EFFICIENCY: 20.47%
ELAPSED LIVE TIME: 10208. * RECOVERY: 66.57%
TRACER ID: TH-18A * TRACER FWHM (kev): 86.86
LAMBDA VALUE: 454. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.198 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 09:58 * EFF CAL DATE: 24-AUG-2005 09:58
BKG FILENAME: B_017_26AUG05 * BKG ELAPSED TIME: 60001.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	12.81	1.19	97.5	2.462E-01	1.511E-01	1.494E-01
TH-228	5400.0	45.13	1.87	99.9	8.588E-01	3.018E-01	1.698E-01
TH229	4872.0	235.32	0.68	99.5	4.424E+00	7.099E-01	1.231E-01
TH-230	4672.0	288.32	0.68	99.8	5.405E+00	1.140E+00	1.227E-01
TH-232	3997.0	59.98	1.02	100.0	1.122E+00	3.524E-01	1.386E-01

*** Tracer FWHM > 80.0 Kev ***

Analyst

Date

Reviewer

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$16_TH.CNF;1

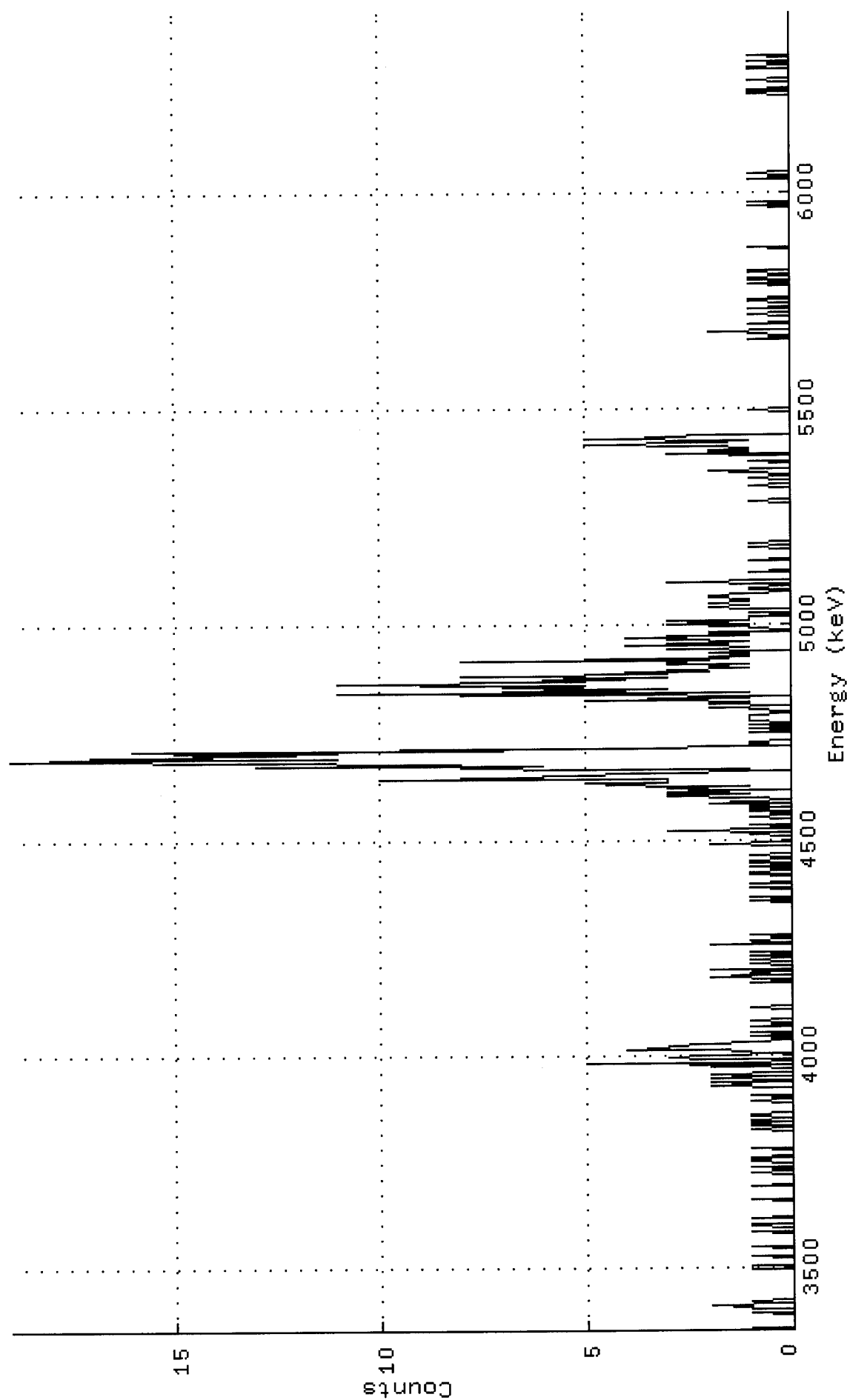
Title : 017

Sample Title: VPSCR081705SL13

Start Time: 2-SEP-2005 08:50: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.34625E+03

Real Time : 0 02:50:08.00 Sample ID : 16 Energy Slope : 3.18015E+00

Live Time : 0 02:50:08.00 Sample Type: TH Energy Quad : -1.79959E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-TH\$16_TH

Channel

1:	10208	10208	0	1	0	0	0	0	0	0	0	0	0	0	0
15:	1	0	0	0	1	1	2	0	0	1	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0
57:	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
71:	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0
85:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
113:	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0
127:	0	1	1	0	1	0	0	0	0	0	1	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
155:	1	1	0	1	1	0	0	1	1	0	0	0	0	0	0
169:	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
183:	0	2	2	1	2	0	0	2	1	0	2	0	0	0	0
197:	0	1	2	0	5	1	0	0	2	3	2	0	1	1	1
211:	2	4	3	3	3	2	1	0	0	0	1	0	0	0	0
225:	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
239:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
267:	1	0	1	0	2	0	0	0	0	1	0	0	1	0	0
281:	1	0	0	1	0	0	0	0	0	0	2	0	0	0	0
295:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0
337:	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0
351:	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0
365:	0	0	2	0	0	0	0	0	0	1	0	0	3	0	0
379:	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0
393:	1	1	0	1	0	2	1	0	0	1	3	3	1	3	3
407:	0	2	3	1	3	4	5	3	3	3	10	6	6	5	5
421:	4	0	2	5	8	6	13	8	14	12	19	17	11	17	17
435:	12	12	15	7	16	3	2	0	1	1	0	0	0	0	0
449:	0	0	0	1	0	1	0	0	1	0	0	1	1	1	1
463:	1	1	1	0	0	0	1	1	2	0	2	1	1	3	3
477:	5	2	0	0	5	11	1	7	5	3	7	5	7	11	11
491:	5	6	5	3	8	7	3	4	2	3	1	3	2	1	1
505:	3	3	2	8	2	1	2	1	1	2	0	0	0	0	0
519:	2	4	2	1	3	2	4	1	3	1	2	0	0	1	1
533:	1	1	3	1	2	3	1	1	1	0	0	1	0	0	0
547:	0	1	2	1	1	2	1	1	1	2	2	2	1	1	1
561:	0	1	0	1	0	1	0	3	0	0	0	0	0	0	0
575:	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
589:	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
631:	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
645:	0	0	0	0	1	0	0	0	1	1	2	0	0	0	0
659:	0	0	0	1	0	0	0	0	0	3	0	2	1	2	0
673:	1	2	2	5	2	2	1	5	4	3	2	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	1	0	0	0	1	1	2	0	0	0	0	0
771:	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1
785:	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
799:	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0
813:	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
869:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0
967:	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1
981:	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
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Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:41:30.01

Detector ID: 17	Acquisition Start: 2-SEP-2005 08:50:04.01
Live Time: 0 02:50:08.00	Real Time: 0 02:50:08.00
Batch Id: 0508094A-TH	Sample Id: 16
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3971.32	61	0	47.68	198.79	144	97	5.98E-03	12.8	
2	0	4663.67	289	0	71.66	424.46	346	100	2.83E-02	5.9	
3	0	4903.47	236	0	86.86	504.04	445	126	2.31E-02	6.5	
4	0	5392.42	47	0	46.64	668.72	587	102	4.60E-03	14.6	
5	0	5844.92	14	0	365.72	824.14	774	123	1.37E-03	26.7	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:41:32.71

	Acquisition Start: 26-AUG-2005 12:00:52.01
Live Time: 0 16:40:01.00	Real Time: 0 16:40:01.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.21	6	0	248.05	192.00	144	97	1.00E-04	40.8	
2	0	4575.85	4	0	209.89	395.50	346	100	6.67E-05	50.0	
3	0	4913.83	4	0	190.81	507.50	445	126	6.67E-05	50.0	
4	0	5300.46	11	0	63.60	637.50	587	102	1.83E-04	30.2	
5	0	5876.21	7	0	365.72	835.00	774	123	1.17E-04	37.8	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:41:33.03

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3971.32*	60	0	47.68	198.79	144	97	5.88E-03	13.0	
2	0	4663.67*	288	0	71.66	424.46	346	100	2.82E-02	5.9	
3	0	4903.47*	235	0	86.86	504.04	445	126	2.31E-02	6.5	
4	0	5392.42*	45	0	46.64	668.72	587	102	4.42E-03	15.2	
5	0	5844.92*	13	0	365.72	824.14	774	123	1.25E-03	29.4	

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL13
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:50:04
Sample ID         : 16 Sample quantity : 1.0382 gram
Sample type       : TH Sample geometry :
Detector name     : 017 Detector geometry:
Elapsed live time : 0 02:50:08.00 Elapsed real time: 0 02:50:08.00 0.0%
Energy tolerance  : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type   : Average value Efficiencies at : Peak Energy
Abundance limit   : 75.00
    
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3971.32*	60	47.68	198.79	144	97	26.1		TH-232	0.747
0	4663.67*	288	71.66	424.46	346	100	11.8		TH-230	3.60
0	4903.47*	235	86.86	504.04	445	126	13.1		TH229	2.95
0	5392.42*	45	46.64	668.72	587	102	30.5		TH-228	0.572
0	5844.92*	13365.72	824.14	774	123	58.8			TH-227	0.164

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ALPHA SPECTROMETRY REPORT
2-SEP-2005 11:41:45

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-TH\$17_TH.CNF

*
BATCH ID: 0508094A-TH * SAMPLE ID: 17
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.077E+00 gram
SAMPLE TITLE: VPSCR081705SL14 * DETECTOR NUMBER: 018
ACQ DATE: 2-SEP-2005 08:50 * AVERAGE EFFICIENCY: 19.39%
ELAPSED LIVE TIME: 10205. * RECOVERY: 102.65%
TRACER ID: TH-18A * TRACER FWHM (kev): 121.53
LAMBDA VALUE: 452. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 10.173 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 09:58 * EFF CAL DATE: 24-AUG-2005 09:58
BKG FILENAME: B_018_26AUG05 * BKG ELAPSED TIME: 60009.

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	3.32	0.68	97.5	4.212E-02	5.191E-02	8.292E-02
TH-228	5400.0	83.62	2.38	99.9	1.051E+00	2.871E-01	1.222E-01
TH229	4872.0	342.66	0.34	99.5	4.253E+00	6.073E-01	6.730E-02
TH-230	4672.0	356.66	0.34	99.8	4.414E+00	8.429E-01	6.709E-02
TH-232	3997.0	82.00	0.00	100.0	1.013E+00	2.756E-01	3.348E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst

Date

Reviewer

Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-TH\$17_TH.CNF;1

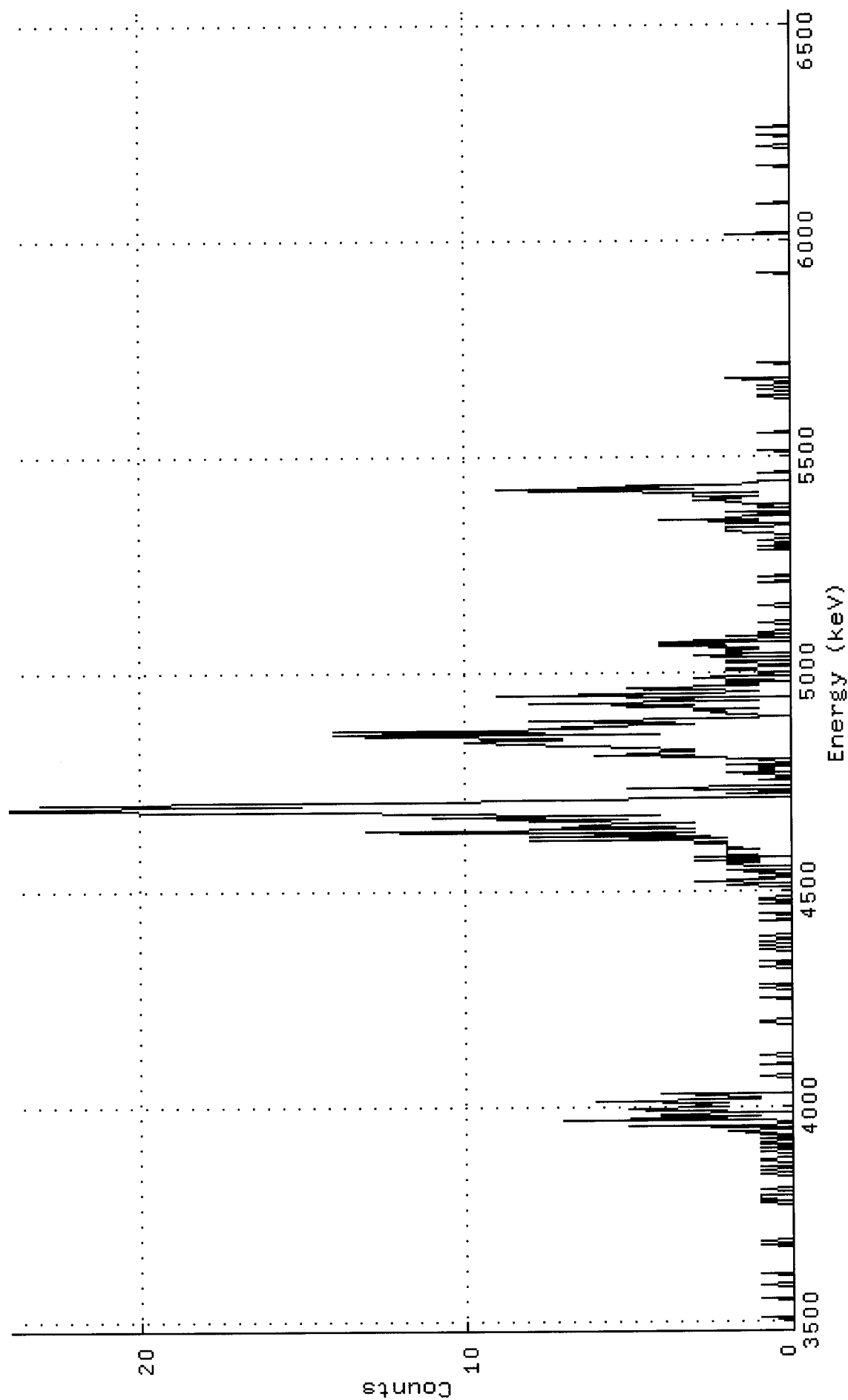
Title : 018

Sample Title: VPSCR081705SL14

Start Time: 2-SEP-2005 08:50: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.46836E+03

Real Time : 0 02:50:05.00 Sample ID : 17 Energy Slope : 3.19823E+00

Live Time : 0 02:50:05.00 Sample Type: TH Energy Quad : -2.07468E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-TH\$17_TH

Channel

1:	10205	10205	0	0	0	0	0	0	0	0	0	1	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
29:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
43:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	1	0	0	1	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	1	1	0
99:	1	1	1	0	0	0	0	1	0	0	0	0	0	0
113:	0	0	0	0	1	0	0	1	0	1	0	0	0	0
127:	1	1	0	0	0	0	0	1	0	0	1	0	0	1
141:	1	0	0	1	0	1	0	1	2	0	1	0	5	1
155:	0	0	1	7	3	1	4	4	1	0	4	5	2	3
169:	3	2	2	6	1	1	2	2	4	0	0	0	0	0
183:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
197:	0	0	1	0	0	0	0	0	0	1	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	1	1	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
253:	0	0	1	1	0	1	0	0	0	0	0	0	0	0
267:	0	0	0	0	1	0	0	0	1	0	0	0	0	1
281:	0	0	0	1	0	0	0	1	0	1	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
309:	0	0	1	0	0	0	0	0	0	0	1	0	1	0
323:	1	0	0	0	0	0	0	0	0	0	2	0	0	3
337:	1	0	1	0	1	0	1	2	0	0	0	1	2	1
351:	3	1	1	3	0	2	2	2	2	2	1	2	2	2
365:	3	2	4	8	2	3	8	4	3	11	13	3	4	7
379:	6	5	3	8	5	7	11	4	6	12	13	16	24	24
393:	17	15	23	15	11	8	2	0	0	0	2	0	0	1
407:	5	0	0	0	0	0	1	0	0	0	1	2	0	1
421:	1	1	0	2	0	0	1	0	2	2	6	3	5	3
435:	4	3	5	4	7	8	8	10	9	7	7	12	14	4
449:	11	14	9	7	5	7	3	4	4	8	1	2	0	2
463:	2	2	3	1	1	5	3	3	8	1	3	3	5	0
477:	9	4	3	1	3	4	5	1	3	1	2	0	1	3
491:	2	0	1	0	0	2	2	2	0	0	0	2	2	0
505:	0	0	2	3	0	2	2	1	2	1	4	2	4	0
519:	4	2	0	1	2	0	1	1	0	0	0	0	0	0
533:	1	0	0	0	0	0	0	0	0	0	0	0	0	1
547:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	1	0	0	0	1	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	1	0	0	1	0	0	0	1	0	0	0	0	0
603:	1	2	2	2	2	1	0	0	2	1	4	1	2	1
617:	0	0	2	0	0	0	1	1	0	1	2	2	3	2
631:	1	3	3	3	1	8	3	9	4	5	2	1	1	0
645:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	1	1	0	0	0
715:	0	1	0	0	1	0	0	0	0	1	2	0	0	0
729:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	2	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	1	0	0	0	0	0	0	0	0	1	0	0	0
925:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Gross Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:41:39.26

Detector ID: 18	Acquisition Start: 2-SEP-2005 08:50:31.01
Live Time: 0 02:50:05.00	Real Time: 0 02:50:05.00
Batch Id: 0508094A-TH	Sample Id: 17
Sample Type: TH	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3975.07	82	0	78.08	160.10	104	97	8.04E-03	11.0	
2	0	4658.01	357	0	69.96	381.41	305	99	3.50E-02	5.3	
3	0	4895.77	343	0	121.53	460.04	404	125	3.36E-02	5.4	
4	0	5381.19	86	0	14.92	623.29	545	103	8.43E-03	10.8	
5	0	5914.22	4	0	3.20	807.00	733	123	3.92E-04	50.0	

Background Counts Within Peak Regions Generated: 2-SEP-2005 11:41:42.14

	Acquisition Start: 26-AUG-2005 12:00:55.01
Live Time: 0 16:40:09.00	Real Time: 0 16:40:09.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3949.70	0	0	0.00	152.00	104	97	0.00E+00	0.0	
2	0	4574.54	2	0	143.92	354.00	305	99	3.33E-05	70.7	
3	0	4913.68	2	0	329.42	466.00	404	125	3.33E-05	70.7	
4	0	5300.81	14	0	20.69	596.00	545	103	2.33E-04	26.7	
5	0	5876.96	4	0	0.00	794.00	733	123	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 2-SEP-2005 11:41:42.42

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3975.07*	82	0	78.08	160.10	104	97	8.04E-03	11.0	
2	0	4658.01*	357	0	69.96	381.41	305	99	3.49E-02	5.3	
3	0	4895.77*	343	0	121.53	460.04	404	125	3.36E-02	5.4	
4	0	5381.19*	84	0	14.92	623.29	545	103	8.19E-03	11.1	
5	0	5914.22*	3	0	3.20	807.00	733	123	3.25E-04	61.1	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL14
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 2-SEP-2005 08:50:31
 Sample ID : 17 Sample quantity : 1.0774 gram
 Sample type : TH Sample geometry :
 Detector name : 018 Detector geometry:
 Elapsed live time: 0 02:50:05.00 Elapsed real time: 0 02:50:05.00 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3975.07*	82	78.08	160.10	104	97	22.1		TH-232	1.04
0	4658.01*	357	69.96	381.41	305	99	10.6		TH-230	4.53
0	4895.77*	343121.53	460.04	404	125	10.8			TH229	4.37
0	5381.19*	84	14.92	623.29	545	103	22.2		TH-228	1.08
0	5914.22*	3	3.20	807.00	733	123122.2			TH-227	4.323E-02

SECTION X
ANALYTICAL DATA (RADIUM-226)

Work Order	05-08094
Analysis Code	Ra226
Run	1
Date Received	8/19/2005
Lab Deadline	9/9/2005
Client	Missouri Dept. of Natural Resources
Project	B3Z02092
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 903.0 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	Ba-133
Radiometric Sol#	Ba-6a
Tracer Act (dpm/g)	1675.937
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		08/22/05 00:00	1.0000E+00
02	MBL	BLANK		08/22/05 00:00	1.0000E+00
03	DUP	VPSCR081705SL01	42	08/17/05 10:02	1.0645E+00
04	DO	VPSCR081705SL01	42	08/17/05 10:02	1.0640E+00
05	TRG	VPSCR081705SL02	35	08/17/05 10:04	1.0686E+00
06	TRG	VPSCR081705SL03	45	08/17/05 10:08	1.0256E+00
07	TRG	VPSCR081705SL04	38	08/17/05 10:09	1.0143E+00
08	TRG	VPSCR081705SL05	41	08/17/05 10:11	1.1710E+00
09	TRG	VPSCR081705SL06	38	08/17/05 10:18	1.0096E+00
10	TRG	VPSCR081705SL07	41	08/17/05 10:20	1.0288E+00
11	TRG	VPSCR081705SL08	47	08/17/05 10:21	9.9500E-01
12	TRG	VPSCR081705SL09	37	08/17/05 10:23	1.0365E+00
13	TRG	VPSCR081705SL10	30	08/17/05 10:25	1.0068E+00
14	TRG	VPSCR081705SL11	42	08/17/05 10:27	1.0743E+00
15	TRG	VPSCR081705SL12	37	08/17/05 10:30	1.0861E+00
16	TRG	VPSCR081705SL13	46	08/17/05 10:32	1.0040E+00
17	TRG	VPSCR081705SL14	41	08/17/05 10:44	1.0550E+00

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS	0.6114	1024.7	445.0	96.41		0.0239	0.0302	0.0063		96.41	2.27	1.00
02	MBL	0.6072	1017.6	459.6	100.26		0.0234	0.0300	0.0066		100.00	2.37	1.00
03	DUP	0.6042	1012.6	459.5	100.74		0.0237	0.0300	0.0063		100.00	2.27	1.00
04	DO	0.6048	1013.6	426.9	93.50		0.0235	0.0300	0.0065		93.50	2.34	1.00
05	TRG	0.6014	1007.9	421.2	92.77		0.0236	0.0301	0.0065		92.77	2.34	1.00
06	TRG	0.6031	1010.8	361.7	79.44		0.0237	0.0296	0.0059		79.44	2.12	1.00
07	TRG	0.6055	1014.8	395.4	86.50		0.0239	0.0299	0.0060		86.50	2.16	1.00
08	TRG	0.6025	1009.8	381.0	83.77		0.0236	0.0300	0.0064		83.77	2.31	1.00
09	TRG	0.6046	1013.3	409.1	89.63		0.0235	0.0291	0.0056		89.63	2.00	1.00
10	TRG	0.6018	1008.6	389.6	85.76		0.0236	0.0296	0.0060		85.76	2.16	1.00
11	TRG	0.6000	1005.6	445.2	98.29		0.0243	0.0297	0.0054		98.29	1.91	1.00
12	TRG	0.6043	1012.8	447.9	98.18		0.0239	0.0297	0.0058		98.18	2.08	1.00
13	TRG	0.5997	1005.1	334.9	73.97		0.0240	0.0292	0.0052		73.97	1.81	1.00
14	TRG	0.6004	1006.2	409.0	90.24		0.0239	0.0295	0.0056		90.24	2.00	1.00
15	TRG	0.6042	1012.6	401.5	88.02		0.0241	0.0293	0.0052		88.02	1.81	1.00
16	TRG	0.6000	1005.6	409.6	90.43		0.0237	0.0298	0.0061		90.43	2.20	1.00
17	TRG	0.6018	1008.6	354.2	77.96		0.0236	0.0294	0.0058		77.96	2.08	1.00

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep 10 Date/Time	Sep 10 By	Sep 11 Date/Time	Sep 11 By
01	LCS			08/23/05 11:31	JBARNARD				
02	MBL			08/23/05 11:31	JBARNARD				
03	DUP			08/23/05 11:31	JBARNARD				
04	DO	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				
05	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				
06	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				
07	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				
08	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				
09	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				
10	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				
11	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				
12	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				
13	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				
14	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				
15	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				
16	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				
17	TRG	08/22/05 09:47	KSALLINGS	08/23/05 11:31	JBARNARD				

		Client	Missouri Dept. of Natural Resources	
Run	1	Analysis Code	Ra226	
		Eberline Services Work Order	05-08094	

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	RA-226	LCS	LCS	pCi/g	1.01E+01	1.34E+00	2.10E-01	1.03E+01	98.04	OK		OK	
02	RA-226	MBL	BLANK	pCi/g	2.52E-02	5.93E-02	1.60E-01					OK	OK
03	RA-226	DUP	VPSCR081705SL01	pCi/g	9.79E-01	3.38E-01	7.58E-02				OK	OK	
04	RA-226	DO	VPSCR081705SL01	pCi/g	1.18E+00	3.88E-01	1.99E-01					OK	
05	RA-226	TRG	VPSCR081705SL02	pCi/g	1.01E+00	3.56E-01	1.38E-01					OK	
06	RA-226	TRG	VPSCR081705SL03	pCi/g	1.37E+00	4.35E-01	1.78E-01					OK	
07	RA-226	TRG	VPSCR081705SL04	pCi/g	8.65E-01	3.42E-01	2.12E-01					OK	
08	RA-226	TRG	VPSCR081705SL05	pCi/g	1.22E+00	3.95E-01	1.65E-01					OK	
09	RA-226	TRG	VPSCR081705SL06	pCi/g	1.73E+00	4.58E-01	1.52E-01					OK	
10	RA-226	TRG	VPSCR081705SL07	pCi/g	1.38E+00	4.23E-01	1.67E-01					OK	
11	RA-226	TRG	VPSCR081705SL08	pCi/g	8.81E-01	2.96E-01	6.45E-02					OK	
12	RA-226	TRG	VPSCR081705SL09	pCi/g	1.24E+00	3.63E-01	1.15E-01					OK	
13	RA-226	TRG	VPSCR081705SL10	pCi/g	1.19E+00	3.92E-01	2.01E-01					OK	
14	RA-226	TRG	VPSCR081705SL11	pCi/g	1.11E+00	3.53E-01	1.74E-01					OK	
15	RA-226	TRG	VPSCR081705SL12	pCi/g	9.57E-01	3.12E-01	1.45E-01					OK	
16	RA-226	TRG	VPSCR081705SL13	pCi/g	1.19E+00	3.86E-01	1.80E-01					OK	
17	RA-226	TRG	VPSCR081705SL14	pCi/g	1.85E+00	5.15E-01	2.89E-01					OK	

Missouri Dept of Natural Resources		Eberline Services Work Order	05-08094	Ra226	1	Run
Client		Analysis Code				


Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
01	RA-226	LCS	08/22/05 00:00	1.00E+00	96.41		96.41			
02	RA-226	MBL	08/22/05 00:00	1.00E+00	100.00		100.00			
03	RA-226	DUP	08/17/05 10:02	1.06E+00	100.00		100.00			
04	RA-226	DO	08/17/05 10:02	1.06E+00	93.50		93.50			
05	RA-226	TRG	08/17/05 10:04	1.07E+00	92.77		92.77			
06	RA-226	TRG	08/17/05 10:08	1.03E+00	79.44		79.44			
07	RA-226	TRG	08/17/05 10:09	1.01E+00	86.50		86.50			
08	RA-226	TRG	08/17/05 10:11	1.17E+00	83.77		83.77			
09	RA-226	TRG	08/17/05 10:18	1.01E+00	89.63		89.63			
10	RA-226	TRG	08/17/05 10:20	1.03E+00	85.76		85.76			
11	RA-226	TRG	08/17/05 10:21	9.95E-01	98.29		98.29			
12	RA-226	TRG	08/17/05 10:23	1.04E+00	98.18		98.18			
13	RA-226	TRG	08/17/05 10:25	1.01E+00	73.97		73.97			
14	RA-226	TRG	08/17/05 10:27	1.07E+00	90.24		90.24			
15	RA-226	TRG	08/17/05 10:30	1.09E+00	88.02		88.02			
16	RA-226	TRG	08/17/05 10:32	1.00E+00	90.43		90.43			
17	RA-226	TRG	08/17/05 10:44	1.06E+00	77.96		77.96			

	Client	Missouri Dept of Natural Resources	
	Eberline Services Work Order	05-08094	
	Analysis Code	Ra226	
	Run	1	

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	RA-226	LCS	08/27/05 08:49		A_Spec	32	170.05	7.12 E+02	4.00 E-03	19.4
02	RA-226	MBL	08/27/05 08:49		A_Spec	33	170	2.03 E+00	2.00 E-03	21.3
03	RA-226	DUP	08/27/05 08:49		A_Spec	34	170	7.95 E+01	0.00 E+00	20.2
04	RA-226	DO	08/27/05 08:50		A_Spec	35	170	9.06 E+01	4.00 E-03	20.5
05	RA-226	TRG	08/27/05 08:50		A_Spec	36	170	7.94 E+01	1.00 E-03	20.9
06	RA-226	TRG	08/27/05 08:50		A_Spec	37	170	8.87 E+01	2.00 E-03	21
07	RA-226	TRG	08/27/05 08:51		A_Spec	38	170	5.76 E+01	4.00 E-03	20.1
08	RA-226	TRG	08/27/05 08:51		A_Spec	39	170	9.21 E+01	2.00 E-03	20.5
09	RA-226	TRG	08/27/05 08:51		A_Spec	40	170	1.24 E+02	2.00 E-03	20.9
10	RA-226	TRG	08/27/05 08:52		A_Spec	41	170	9.69 E+01	2.00 E-03	21.1
11	RA-226	TRG	08/27/05 08:52		A_Spec	42	170	7.07 E+01	0.00 E+00	21.7
12	RA-226	TRG	08/27/05 08:52		A_Spec	43	170	1.04 E+02	1.00 E-03	21.7
13	RA-226	TRG	08/27/05 08:53		A_Spec	44	170	6.99 E+01	4.00 E-03	21
14	RA-226	TRG	08/27/05 08:53		A_Spec	45	170	8.33 E+01	4.00 E-03	20.5
15	RA-226	TRG	08/27/05 08:53		A_Spec	46	170	7.19 E+01	3.00 E-03	20.8
16	RA-226	TRG	08/27/05 08:53		A_Spec	47	170	8.75 E+01	3.00 E-03	21.5
17	RA-226	TRG	08/27/05 08:54		A_Spec	48	170	1.17 E+02	1.00 E-02	20.3

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	08/22/05 00:00	1.0000	0.6114	1024.6679	445.0000	96.41	2.27	1.00
02	MBL	BLANK	08/22/05 00:00	1.0000	0.6072	1017.6289	459.6000	100.26	2.37	1.00
03	DUP	VPSCR081705SL01	08/17/05 10:02	1.0645	0.6042	1012.6011	459.5000	100.74	2.27	1.00
04	DO	VPSCR081705SL01	08/17/05 10:02	1.0640	0.6048	1013.6067	426.9000	93.50	2.34	1.00
05	TRG	VPSCR081705SL02	08/17/05 10:04	1.0686	0.6014	1007.9085	421.2000	92.77	2.34	1.00
06	TRG	VPSCR081705SL03	08/17/05 10:08	1.0256	0.6031	1010.7576	361.7000	79.44	2.12	1.00
07	TRG	VPSCR081705SL04	08/17/05 10:09	1.0143	0.6055	1014.7799	395.4000	86.50	2.16	1.00
08	TRG	VPSCR081705SL05	08/17/05 10:11	1.1710	0.6025	1009.7520	381.0000	83.77	2.31	1.00
09	TRG	VPSCR081705SL06	08/17/05 10:18	1.0096	0.6046	1013.2715	409.1000	89.63	2.00	1.00
10	TRG	VPSCR081705SL07	08/17/05 10:20	1.0288	0.6018	1008.5789	389.6000	85.76	2.16	1.00
11	TRG	VPSCR081705SL08	08/17/05 10:21	0.9950	0.6000	1005.5622	445.2000	98.29	1.91	1.00
12	TRG	VPSCR081705SL09	08/17/05 10:23	1.0365	0.6043	1012.7687	447.9000	98.18	2.08	1.00
13	TRG	VPSCR081705SL10	08/17/05 10:25	1.0068	0.5997	1005.0594	334.9000	73.97	1.81	1.00
14	TRG	VPSCR081705SL11	08/17/05 10:27	1.0743	0.6004	1006.2326	409.0000	90.24	2.00	1.00
15	TRG	VPSCR081705SL12	08/17/05 10:30	1.0861	0.6042	1012.6011	401.5000	88.02	1.81	1.00
16	TRG	VPSCR081705SL13	08/17/05 10:32	1.0040	0.6000	1005.5622	409.6000	90.43	2.20	1.00
17	TRG	VPSCR081705SL14	08/17/05 10:44	1.0550	0.6018	1008.5789	354.2000	77.96	2.08	1.00

Spike and Tracer Worksheet

Internal Work Order		Run	Analysis Code		Date		Technician		Technician Initials		Witness Initials	
05-08094		1	Ra226		8/23/2005 11:23		JBARNARD					

LCS & Matrix Spikes														
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	LCS Volume Used (g)	MS Volume Used (g)	LCSD Volume Used (g)	MSD Volume Used (g)	MS Error Estimate	LCSD Error Estimate	Added pCi	Error Estimate	MSD Added pCi	Error Estimate
Ra-226	Ra-5b	44.218	8/23/2005	0.500	0.5162					10.28	0.473	0.000	0.000	0.000

Tracers							Balance Printer Tapes	
fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition	Tracer	LCS
01	Ba-133	Ba-6a	1675.937	8/23/2005	0.6114	0.6000	0.6114 g	0.5162 g
02	Ba-133	Ba-6a	1675.937	8/23/2005	0.6072	0.6000	-0.6072 g	
03	Ba-133	Ba-6a	1675.937	8/23/2005	0.6042	0.6000	-0.6042 g	
04	Ba-133	Ba-6a	1675.937	8/23/2005	0.6048	0.6000	-0.6048 g	
05	Ba-133	Ba-6a	1675.937	8/23/2005	0.6014	0.6000	-0.6014 g	
06	Ba-133	Ba-6a	1675.937	8/23/2005	0.6031	0.6000	-0.6031 g	
07	Ba-133	Ba-6a	1675.937	8/23/2005	0.6055	0.6000	-0.6055 g	
08	Ba-133	Ba-6a	1675.937	8/23/2005	0.6025	0.6000	-0.6025 g	
09	Ba-133	Ba-6a	1675.937	8/23/2005	0.6046	0.6000	-0.6046 g	
10	Ba-133	Ba-6a	1675.937	8/23/2005	0.6018	0.6000	-0.6018 g	
11	Ba-133	Ba-6a	1675.937	8/23/2005	0.6000	0.6000	-0.6000 g	
12	Ba-133	Ba-6a	1675.937	8/23/2005	0.6043	0.6000	-0.5997 g	
13	Ba-133	Ba-6a	1675.937	8/23/2005	0.5997	0.6000	-0.6004 g	
14	Ba-133	Ba-6a	1675.937	8/23/2005	0.6004	0.6000	-0.6042 g	
15	Ba-133	Ba-6a	1675.937	8/23/2005	0.6042	0.6000	-0.6000 g	
16	Ba-133	Ba-6a	1675.937	8/23/2005	0.6000	0.6000	-0.6018 g	
17	Ba-133	Ba-6a	1675.937	8/23/2005	0.6018	0.6000		

Aliquot Worksheet

Work Order		Run	Analysis Code	Rpt Units	Lab Deadline	Technician	
05-08094		1	Ra226	grams	9/9/2005	JBARNARD	

Lab Fraction	Missouri Dept. of Natural Resources Client ID	Sample Type	Muffle Data		Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist	Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00					
02	BLANK	MBL					1.0000E+00	1.0000E+00					
03	VPSCR081705SL01	DUP					1.0645E+00	1.0645E+00					
04	VPSCR081705SL01	DO					1.0640E+00	1.0640E+00					
05	VPSCR081705SL02	TRG					1.0686E+00	1.0686E+00					
06	VPSCR081705SL03	TRG					1.0256E+00	1.0256E+00					
07	VPSCR081705SL04	TRG					1.0143E+00	1.0143E+00					
08	VPSCR081705SL05	TRG					1.1710E+00	1.1710E+00					
09	VPSCR081705SL06	TRG					1.0096E+00	1.0096E+00					
10	VPSCR081705SL07	TRG					1.0288E+00	1.0288E+00					
11	VPSCR081705SL08	TRG					9.9500E-01	9.9500E-01					
12	VPSCR081705SL09	TRG					1.0365E+00	1.0365E+00					
13	VPSCR081705SL10	TRG					1.0068E+00	1.0068E+00					
14	VPSCR081705SL11	TRG					1.0743E+00	1.0743E+00					
15	VPSCR081705SL12	TRG					1.0861E+00	1.0861E+00					
16	VPSCR081705SL13	TRG					1.0040E+00	1.0040E+00					
17	VPSCR081705SL14	TRG					1.0550E+00	1.0550E+00					

1.0645 g
1.0240 g
1.0636 g
1.0256 g
1.0143 g
1.1710 g
1.0096 g
1.0288 g
0.9950 g
1.0365 g
1.0068 g
1.0743 g
1.0861 g
1.0040 g
1.0550 g


Comments

Technician: JBarnard Date: 8/23/05

Gravimetric Worksheet

Work Order	Run	Analysis Code	Gravimetric Carrier	Carrier Conc (mg/ml)	Technician
05-08094	1	Ra226			DJOHNSON

TRetec Fraction	Missouri Dept. of Natural Resources Client ID	Sample Type	Carrier Data		Filter Data			Gravimetric	
			Carrier Added (ml)	Filter Tare (g)	Filter Final (g)	Filter Net (g)	% Recovery		
01	LCS	LCS		0.0239	0.0302	0.0063			
02	BLANK	MBL		0.0234	0.0300	0.0066			
03	DUP	DUP		0.0237	0.0300	0.0063			
04	VPSCR081705SL01	DO		0.0235	0.0300	0.0065			
05	VPSCR081705SL02	TRG		0.0236	0.0301	0.0065			
06	VPSCR081705SL03	TRG		0.0237	0.0296	0.0059			
07	VPSCR081705SL04	TRG		0.0239	0.0299	0.0060			
08	VPSCR081705SL05	TRG		0.0236	0.0300	0.0064			
09	VPSCR081705SL06	TRG		0.0235	0.0291	0.0056			
10	VPSCR081705SL07	TRG		0.0236	0.0296	0.0060			
11	VPSCR081705SL08	TRG		0.0243	0.0297	0.0054			
12	VPSCR081705SL09	TRG		0.0239	0.0297	0.0058			
13	VPSCR081705SL10	TRG		0.0240	0.0292	0.0052			
14	VPSCR081705SL11	TRG		0.0239	0.0295	0.0056			
15	VPSCR081705SL12	TRG		0.0241	0.0293	0.0052			
16	VPSCR081705SL13	TRG		0.0237	0.0298	0.0061			
17	VPSCR081705SL14	TRG		0.0236	0.0294	0.0058			

Technician:  Date: 8/26/05

Rough Sample Preparation Log Book

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
05-08094	9/9/2005	8/21/2005	8/22/2005	8/23/2005	KSALLINGS

Eberline Fraction	Missouri Dept. of Natural Resources Client ID	Tare (g)		Gross (g)		Net (g)		Percent		Gamma		Special Info
		Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Wet Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	
04	VPSCR081705SL01	14.0000	427.3600	359.7600	413.3600	345.7600	413.3600	16.35%	83.65%			
05	VPSCR081705SL02	13.8700	408.6400	338.6500	394.7700	324.7800	394.7700	17.73%	82.27%			
06	VPSCR081705SL03	13.7500	484.5800	425.7200	470.8300	411.9700	470.8300	12.50%	87.50%			
07	VPSCR081705SL04	13.9900	464.1600	401.9900	450.1700	388.0000	450.1700	13.81%	86.19%			
08	VPSCR081705SL05	13.9400	567.4800	495.5300	553.5400	481.5900	553.5400	13.00%	87.00%			
09	VPSCR081705SL06	13.9100	501.1000	396.9800	487.1900	383.0700	487.1900	21.37%	78.63%			
10	VPSCR081705SL07	14.0200	471.6000	374.1500	457.5800	360.1300	457.5800	21.30%	78.70%			
11	VPSCR081705SL08	14.0000	497.3700	396.4800	483.3700	382.4800	483.3700	20.87%	79.13%			
12	VPSCR081705SL09	13.9700	501.9700	413.2200	488.0000	399.2500	488.0000	18.19%	81.81%			
13	VPSCR081705SL10	14.0200	477.0700	345.6500	463.0500	331.6300	463.0500	28.38%	71.62%			
14	VPSCR081705SL11	13.9500	511.8900	427.7900	497.9400	413.8400	497.9400	16.89%	83.11%			
15	VPSCR081705SL12	13.8900	464.5200	384.1100	450.6300	370.2200	450.6300	17.84%	82.16%			
16	VPSCR081705SL13	13.8500	461.6300	353.8000	447.7800	339.9500	447.7800	24.08%	75.92%			
17	VPSCR081705SL14	13.9500	458.1300	364.2400	444.1800	350.2900	444.1800	21.14%	78.86%			

Comments	
Special Codes	H: Hot, O: Organic Hazard, P: PCB Hazard, R: Rush, T: Other (see comments)

Technician: Kenny Sallings

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:43:21

Spectral File: ND_AMS_ARCHIVE_C:C_0508094A-RA\$01_RA.CNF

*
BATCH ID: 0508094A-RA * SAMPLE ID: 01
SAMPLE DATE: 27-AUG-2005 00:00 * ALIQUOT: 1.000E+00 gram
SAMPLE TITLE: SPIKE * DETECTOR NUMBER: 032
ACQ DATE: 27-AUG-2005 08:49 * AVERAGE EFFICIENCY: 19.42%
ELAPSED LIVE TIME: 10203. * RECOVERY: 96.41%
TRACER ID: NONE * TRACER FWHM (kev): 0.00
LAMBDA VALUE: 0. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 0.000 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 24-AUG-2005 09:59 * EFF CAL DATE: 24-AUG-2005 09:59
BKG FILENAME: B_032_26AUG05 * BKG ELAPSED TIME: 60001.
* SAF: 2.27
*

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	105.50	1.19	100.0	1.493E+00	4.528E-01	2.501E-01
RN-222	5490.0	205.21	1.36	99.9	2.906E+00	6.461E-01	2.615E-01
RA-226	4785.0	712.10	0.68	100.0	1.008E+01	1.338E+00	2.102E-01

Analyst J. H. Pines

8-29-05
Date

Reviewer Alan Gregory

8/29/05
Date

Spectrum : DKA100: [ALPHA.ALUSR.ARCHIVE.C]C_0508094A-RA\$01_RA.CNF;2

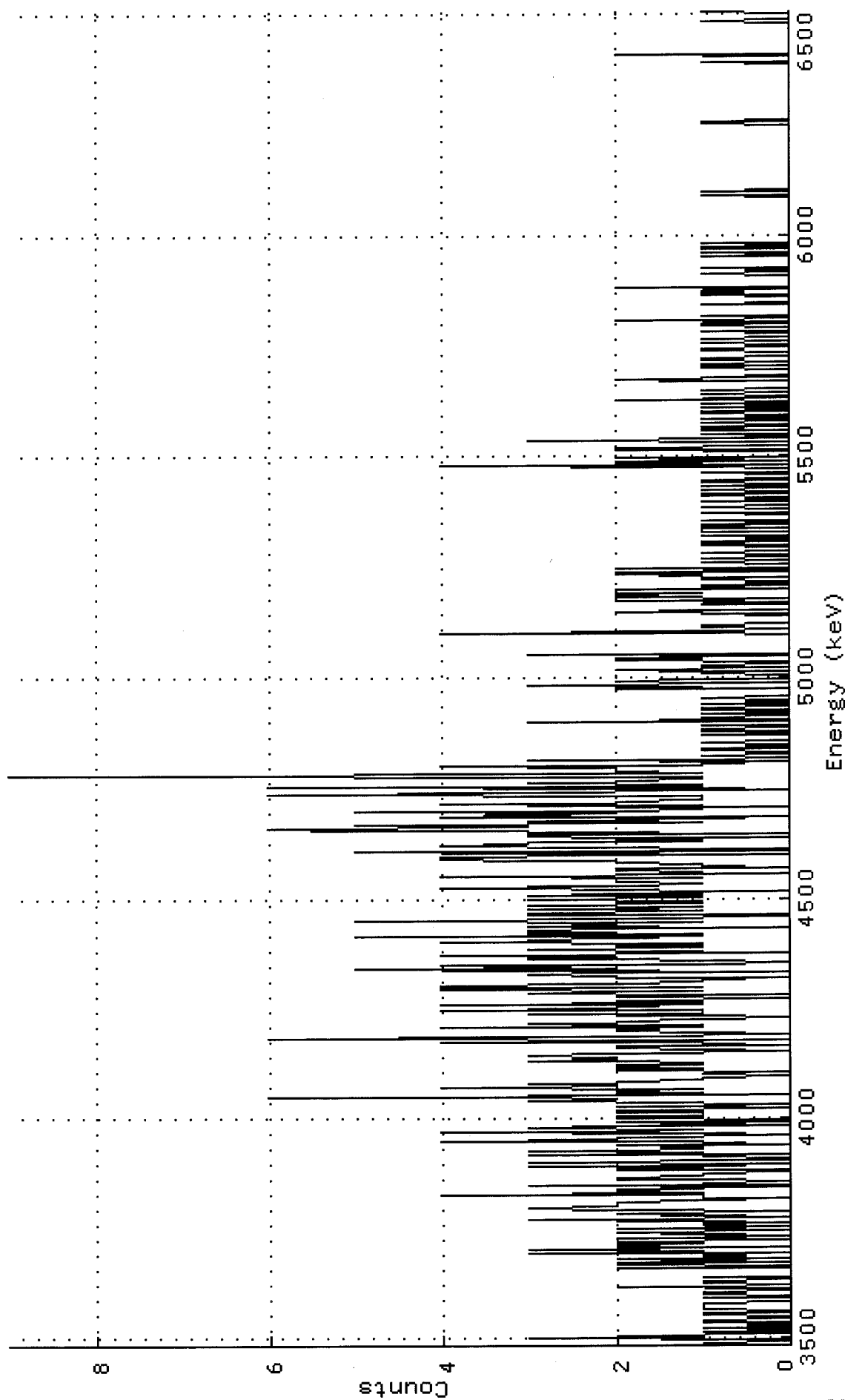
Title : 032

Sample Title: SPIKE

Start Time: 27-AUG-2005 08:49 Sample Time: 27-AUG-2005 00:00 Energy Offset: 3.47349E+03

Real Time : 0 02:50:03.00 Sample ID : 01 Energy Slope : 3.14876E+00

Live Time : 0 02:50:03.00 Sample Type: RA Energy Quad : -1.88450E-04



Channel Contents for ND_AMS_ARCHIVE_C:C_0508094A-RA\$01_RA

Channel

1:	10203	10203	1	1	1	0	0	3	1	2	0	0	1	0
15:	0	1	0	0	1	0	1	0	0	0	1	0	1	0
29:	1	1	1	1	1	0	0	0	0	1	0	1	0	1
43:	0	0	2	1	0	1	1	1	0	0	0	0	1	0
57:	0	0	0	2	0	2	2	0	1	2	0	1	1	0
71:	3	1	3	0	2	2	1	2	2	0	1	2	0	1
85:	2	2	0	1	2	0	1	1	0	1	3	2	0	1
99:	2	2	0	2	2	3	2	2	0	2	1	0	1	1
113:	1	4	1	2	2	2	0	3	0	1	0	1	2	2
127:	1	1	1	0	0	2	1	3	1	0	3	0	0	0
141:	1	0	3	1	3	2	1	1	2	0	1	1	4	0
155:	2	0	0	1	4	2	1	3	2	0	1	2	1	2
169:	2	2	1	1	1	2	2	0	2	1	0	2	1	3
183:	2	3	6	0	2	1	2	1	4	3	2	3	2	2
197:	1	1	1	0	1	1	0	2	2	1	2	1	2	1
211:	2	3	2	2	3	3	2	0	0	1	2	2	0	1
225:	1	4	0	6	3	2	0	1	1	2	2	1	4	1
239:	3	2	2	1	1	0	1	3	1	1	1	4	2	2
253:	1	4	1	2	2	0	2	0	1	3	2	1	4	1
267:	4	4	2	1	1	1	0	2	2	3	2	0	3	5
281:	2	3	4	1	0	1	2	3	2	4	4	0	2	1
295:	3	1	1	2	1	4	3	3	2	1	5	1	3	2
309:	3	2	0	3	2	3	1	5	1	2	0	0	3	3
323:	1	3	2	1	3	3	1	1	1	3	1	1	3	2
337:	0	1	2	3	4	2	1	2	2	2	2	1	4	0
351:	2	1	2	2	0	1	1	1	2	2	3	4	4	2
365:	0	3	5	0	0	3	2	4	3	3	1	2	0	2
379:	3	3	0	3	3	5	6	3	3	5	1	2	3	1
393:	0	4	3	2	5	2	1	2	0	2	4	2	2	1
407:	1	1	1	6	5	4	0	0	1	6	1	1	3	2
421:	2	1	1	1	9	1	1	2	2	2	2	4	1	1
435:	0	3	1	0	1	1	0	0	0	1	0	1	0	0
449:	1	1	0	0	0	0	0	1	0	1	0	1	0	1
463:	0	0	0	3	0	1	1	0	0	1	0	0	1	1
477:	0	0	1	0	0	0	1	0	0	0	0	0	0	0
491:	2	1	3	0	1	2	1	0	0	0	0	0	0	1
505:	2	0	1	1	0	0	0	2	1	2	0	3	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
533:	4	1	0	0	1	1	1	0	0	0	0	0	0	0
547:	1	0	2	1	0	0	0	0	1	0	2	1	0	2
561:	1	2	1	2	2	0	0	1	0	1	0	0	0	1
575:	0	1	1	2	0	2	0	2	0	0	0	0	1	0
589:	0	1	0	0	0	1	1	0	0	0	0	1	0	1
603:	0	1	0	0	1	0	0	0	1	1	1	0	1	1
617:	0	0	1	0	0	0	0	0	1	0	0	0	0	1
631:	0	0	0	0	1	0	0	0	1	1	0	0	1	1
645:	0	0	1	0	1	0	1	0	0	0	0	1	0	0
659:	0	0	1	4	0	2	2	0	1	2	0	0	0	0
673:	0	2	0	2	0	0	0	0	0	3	0	0	0	1
687:	0	0	0	1	1	0	1	0	1	1	0	0	1	0
701:	0	0	1	0	1	0	1	0	0	1	0	0	1	2
715:	0	0	0	1	0	0	1	0	0	0	0	0	0	0
729:	1	2	0	1	0	0	0	0	0	0	1	0	1	0
743:	0	0	1	1	1	0	0	0	0	1	1	1	0	0
757:	0	1	1	0	1	1	0	0	0	0	1	0	0	0
771:	0	1	1	0	0	2	1	0	1	0	0	0	0	0
785:	0	0	0	0	1	0	0	0	0	0	0	1	0	1
799:	1	1	0	2	0	0	0	0	0	0	0	0	0	0
813:	1	0	0	0	1	0	0	0	0	0	0	0	0	0
827:	1	0	1	0	0	0	1	0	1	0	1	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	1	0	0	0	0	0	2	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	1	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:43:08.97

Detector ID: 32	Acquisition Start: 27-AUG-2005 08:49:15.01
Live Time: 0 02:50:03.00	Real Time: 0 02:50:03.00
Batch Id: 0508094A-RA	Sample Id: 01
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4601.46	314		0380.02	366.25	291	155	3.08E-02	5.6	
2	0	5264.66	91		0462.34	589.66	507	174	8.92E-03	10.5	
3	0	5767.56	47		0281.72	763.45	700	161	4.61E-03	14.6	

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:43:19.18

Live Time: 0 16:40:01.00	Acquisition Start: 26-AUG-2005 12:01:30.01
	Real Time: 0 16:40:01.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.71	4		0443.97	368.00	291	155	6.67E-05	50.0	
2	0	5275.90	8		0469.16	593.50	507	174	1.33E-04	35.4	
3	0	5814.87	7		0368.40	780.00	700	161	1.17E-04	37.8	

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:43:19.44

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4601.46*	712		0380.02	366.25	291	155	6.98E-02	5.6	
2	0	5264.66*	205		0462.34	589.66	507	174	2.01E-02	10.6	
3	0	5767.56*	105		0281.72	763.45	700	161	1.03E-02	14.8	

Flag: "*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.0 Generated 29-AUG-2005 06:43:20

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : SPIKE
 Sample date : 27-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:49:15
 Sample ID : 01 Sample quantity : 1.0000 gram
 Sample type : RA Sample geometry :
 Detector name : 032 Detector geometry:
 Elapsed live time: 0 02:50:03.00 Elapsed real time: 0 02:50:03.00 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4601.46*	712380.02	366.25	291	155	11.3			RA-226	9.71
0	5264.66*	205462.34	589.66	507	174	21.1			RN-222	2.80
0	5767.56*	105281.72	763.45	700	161	29.5			PO-218	1.44

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:43:32

Spectral File: ND_AMS_ARCHIVE_R:R_0508094A-RA\$02_RA.CNF

*
BATCH ID: 0508094A-RA * SAMPLE ID: 02
SAMPLE DATE: 27-AUG-2005 00:00 * ALIQUOT: 1.000E+00 gram
SAMPLE TITLE: BLANK * DETECTOR NUMBER: 033
ACQ DATE: 27-AUG-2005 08:49 * AVERAGE EFFICIENCY: 21.31%
ELAPSED LIVE TIME: 10200. * RECOVERY: 100.00%
TRACER ID: NONE * TRACER FWHM (kev): 0.00
LAMBDA VALUE: 0. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 0.000 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_033_26AUG05 * BKG ELAPSED TIME: 60000.
* SAF: 2.37

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	6.60	0.51	100.0	8.208E-02	1.025E-01	1.778E-01
RN-222	5490.0	6.26	0.85	99.9	7.790E-02	1.027E-01	2.064E-01
RA-226	4785.0	2.03	0.34	100.0	2.524E-02	5.927E-02	1.598E-01

Analyst *J. P. Rice*

Date *B-2905*

Reviewer *Alan J. Keegley*

Date *8/29/05*

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.R]R_0508094A-RA\$02_RA.CNF;2

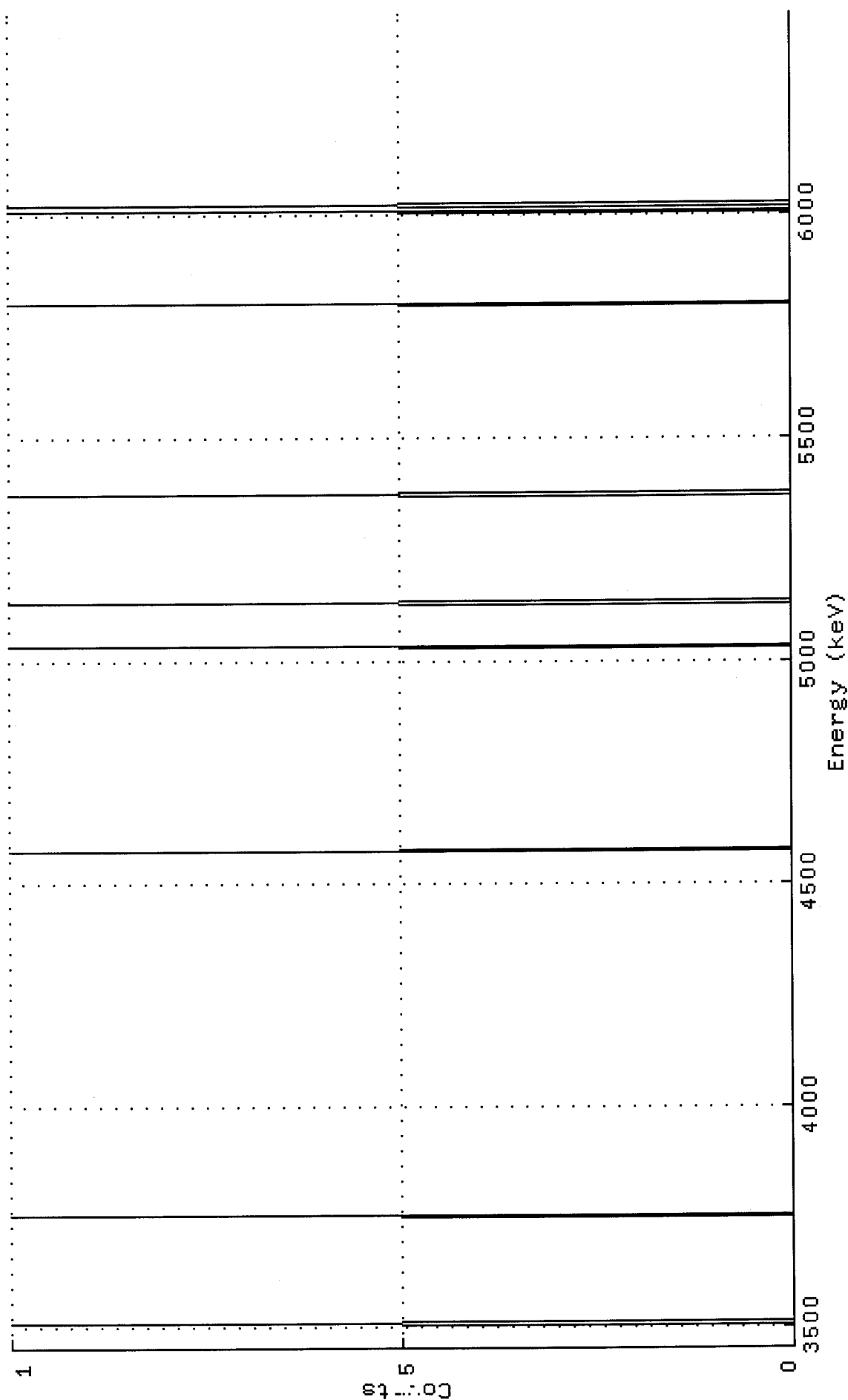
Title : 033

Sample Title: BLANK

Start Time: 27-AUG-2005 08:49 Sample Time: 27-AUG-2005 00:00 Energy Offset: 3.44527E+03

Real Time : 0 02:50:00.40 Sample ID : 02 Energy Slope : 3.13024E+00

Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.93467E-04



Channel Contents for ND_AMS_ARCHIVE_R:R_0508094A-RA\$02_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
379:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
393:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
407:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
421:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
435:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
631:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
869:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:43:27.11

Detector ID: 33	Acquisition Start: 27-AUG-2005 08:49:33.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.40
Batch Id: 0508094A-RA	Sample Id: 02
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4573.98	1	0	3.13	369.00	303	155	9.80E-05	100.0	
2	0	5177.31	3	0	372.50	573.67	520	176	2.94E-04	57.7	
3	0	5941.90	3	0	247.29	841.33	715	163	2.94E-04	57.7	

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:43:30.77

	Acquisition Start: 26-AUG-2005 12:01:33.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.20

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.82	2	0	112.69	380.00	303	155	3.33E-05	70.7	
2	0	5275.49	5	0	363.11	607.50	520	176	8.33E-05	44.7	
3	0	5814.35	3	0	297.37	796.00	715	163	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:43:31.04

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4573.98*	2	0	3.13	369.00	303	155	1.99E-04	117.3	
2	0	5177.31*	6	0	372.50	573.67	520	176	6.14E-04	65.9	
3	0	5941.90*	7	0	247.29	841.33	715	163	6.47E-04	62.4	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : BLANK
 Sample date : 27-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:49:33
 Sample ID : 02 Sample quantity : 1.0000 gram
 Sample type : RA Sample geometry :
 Detector name : 033 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.40 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4573.98*	2	3.13	369.00	303	155234.7			RA-226	2.524E-02
0	5177.31*	6372.50	573.67	520	176131.7				RN-222	7.790E-02
0	5941.90*	7247.29	841.33	715	163124.7				PO-218	8.208E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:43:42

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$03_RA.CNF

*
BATCH ID: 0508094A-RA * SAMPLE ID: 03
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.064E+00 gram
SAMPLE TITLE: VPSCR081705SL01 * DETECTOR NUMBER: 034
ACQ DATE: 27-AUG-2005 08:49 * AVERAGE EFFICIENCY: 20.21%
ELAPSED LIVE TIME: 10200. * RECOVERY: 100.00%
TRACER ID: NONE * TRACER FWHM (kev): 0.00
LAMBDA VALUE: 0. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 0.000 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_034_26AUG05 * BKG ELAPSED TIME: 60000.
* SAF: 2.27

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	51.87	0.34	100.0	6.391E-01	2.720E-01	1.516E-01
RN-222	5490.0	65.15	0.68	99.9	8.032E-01	3.067E-01	1.831E-01
RA-226	4785.0	79.45	0.00	100.0	9.787E-01	3.378E-01	7.578E-02

Analyst Jay Price

Date 8-29-05

Reviewer Alan J. Gregory

Date 8/29/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-RA\$03_RA.CNF;2

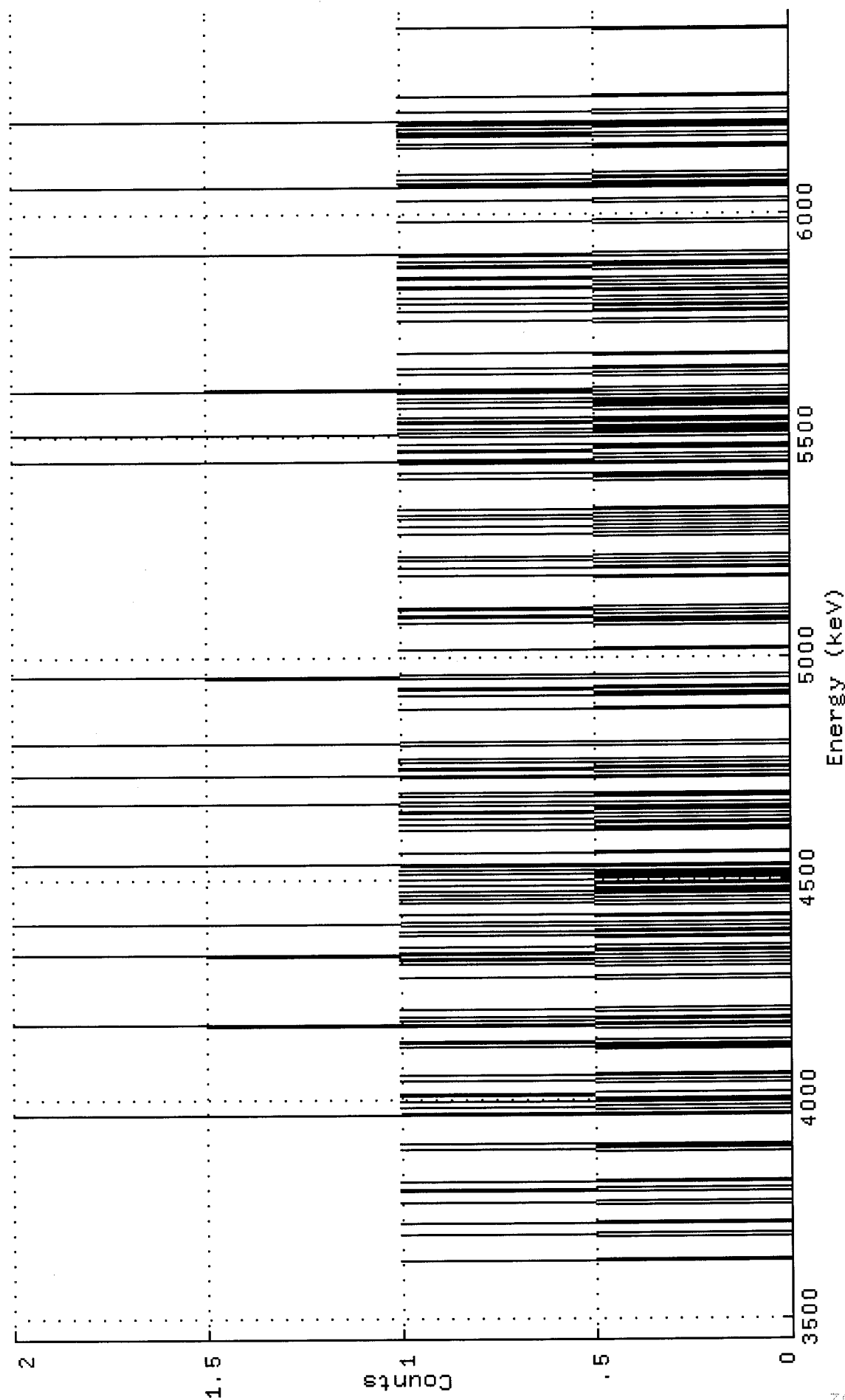
Title : 034

Sample Title: VPSCR081705SL01

Start Time: 27-AUG-2005 08:49 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44466E+03

Real Time : 0 02:50:00.50 Sample ID : 03 Energy Slope : 3.08962E+00

Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.48111E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$03_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
85:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
113:	0	1	1	0	0	0	0	0	1	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	1	0	0	0	1	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	2	0	0	0	0	1	0	0	0	0	1	0	0
183:	0	1	1	0	0	0	0	0	0	0	0	0	1	0
197:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	1	0	0	1	0
225:	1	0	0	0	0	0	0	0	0	0	0	1	2	0
239:	0	1	1	0	1	0	0	0	0	0	1	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
281:	0	0	1	0	0	1	0	1	1	2	0	1	0	0
295:	0	1	0	0	0	0	0	0	0	1	0	0	0	1
309:	0	0	0	0	2	0	0	0	0	0	0	1	0	0
323:	0	0	0	0	0	0	1	0	0	1	0	0	1	0
337:	0	1	0	0	0	1	0	0	1	1	0	0	0	1
351:	0	0	1	0	0	0	2	0	0	0	0	0	0	0
365:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
379:	0	0	0	0	0	1	0	0	0	1	0	0	0	1
393:	1	0	0	0	1	1	0	0	0	1	0	2	0	0
407:	0	0	0	1	0	1	0	0	0	0	0	0	0	0
421:	0	0	0	0	2	0	0	0	0	1	0	1	0	0
435:	0	1	1	1	0	0	0	0	0	0	0	0	0	0
449:	0	2	0	0	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	1	0	0	0	0	0	0	0	0	0	1	0	0	0
491:	1	0	1	0	0	0	0	0	0	1	2	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	0	0	0	1	0	0	0	1
547:	0	1	0	0	0	0	1	1	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	1	0	0	0	0	0	0	1	0	0	0
589:	0	1	1	0	1	1	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
617:	1	0	0	0	0	0	1	0	0	1	0	0	0	0
631:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	1	0	0	0	1
659:	0	0	0	0	0	0	0	0	2	0	1	0	0	0
673:	0	0	1	1	0	0	0	1	0	0	0	0	1	0
687:	0	2	0	1	0	0	1	0	0	0	1	0	1	0
701:	1	0	0	0	0	0	0	0	1	0	0	0	1	0
715:	0	1	0	0	0	0	1	0	2	1	0	0	0	0
729:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
743:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
785:	0	1	0	0	0	0	1	0	0	0	0	1	0	0
799:	0	0	0	0	1	0	1	0	0	0	0	0	1	1
813:	0	0	0	0	0	0	0	1	1	0	0	1	0	0
827:	0	0	0	2	1	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
883:	0	2	0	1	0	0	1	1	0	0	0	1	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	1	0	1	0	0	0	0	0	0
925:	1	1	0	1	1	1	1	0	0	1	0	2	0	0
939:	0	0	0	0	0	1	1	0	0	0	0	0	0	0
953:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

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Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:43:37.58

Detector ID: 34	Acquisition Start: 27-AUG-2005 08:49:52.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.50
Batch Id: 0508094A-RA	Sample Id: 03
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4603.03	35	0426.37	381.91	306	155	3.43E-03	16.9		
2	0	5323.72	29	0 67.97	627.03	523	176	2.84E-03	18.6		
3	0	5795.13	23	0335.13	790.74	717	162	2.25E-03	20.9		

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:43:41.10

	Acquisition Start: 26-AUG-2005 12:01:36.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.26	0	0 0.00	383.00	306	155	0.00E+00	0.0		
2	0	5275.67	4	0472.71	610.50	523	176	6.67E-05	50.0		
3	0	5814.43	2	0 52.52	797.50	717	162	3.33E-05	70.7		

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:43:41.34

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4603.03*	79	0426.37	381.91	306	155	7.79E-03	16.9		
2	0	5323.72*	65	0 67.97	627.03	523	176	6.39E-03	18.8		
3	0	5795.13*	52	0335.13	790.74	717	162	5.09E-03	21.0		

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL01
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:49:52
 Sample ID : 03 Sample quantity : 1.0645 gram
 Sample type : RA Sample geometry :
 Detector name : 034 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.50 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4603.03*	79426.37	381.91	306	155	33.8			RA-226	0.979
0	5323.72*	65	67.97	627.03	523	176	37.5		RN-222	0.803
0	5795.13*	52335.13	790.74	717	162	42.0			PO-218	0.639

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:43:52

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$04_RA.CNF

BATCH ID:	0508094A-RA	*	SAMPLE ID:	04
SAMPLE DATE:	17-AUG-2005 00:00	*	ALIQOT:	1.064E+00 gram
SAMPLE TITLE:	VPSCR081705SL01	*	DETECTOR NUMBER:	035
ACQ DATE:	27-AUG-2005 08:50	*	AVERAGE EFFICIENCY:	20.51%
ELAPSED LIVE TIME:	10200.	*	RECOVERY:	93.50%
TRACER ID:	NONE	*	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	*	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	*	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	*	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	*	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_035_26AUG05	*	BKG ELAPSED TIME:	60000.
		*	SAF:	2.34
		*		

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	57.99	0.51	100.0	7.532E-01	3.085E-01	1.833E-01
RN-222	5490.0	61.65	1.53	99.9	8.012E-01	3.212E-01	2.573E-01
RA-226	4785.0	90.58	0.68	100.0	1.176E+00	3.883E-01	1.989E-01

Analyst Jeff Reis

8/29/05
Date

Reviewer Alan Gregory

8/29/05
Date

Spectrum : DKA100: [ALPHA.ALUSR.ARCHIVE.S]S_0508094A-RA\$04_RA.CNF;1

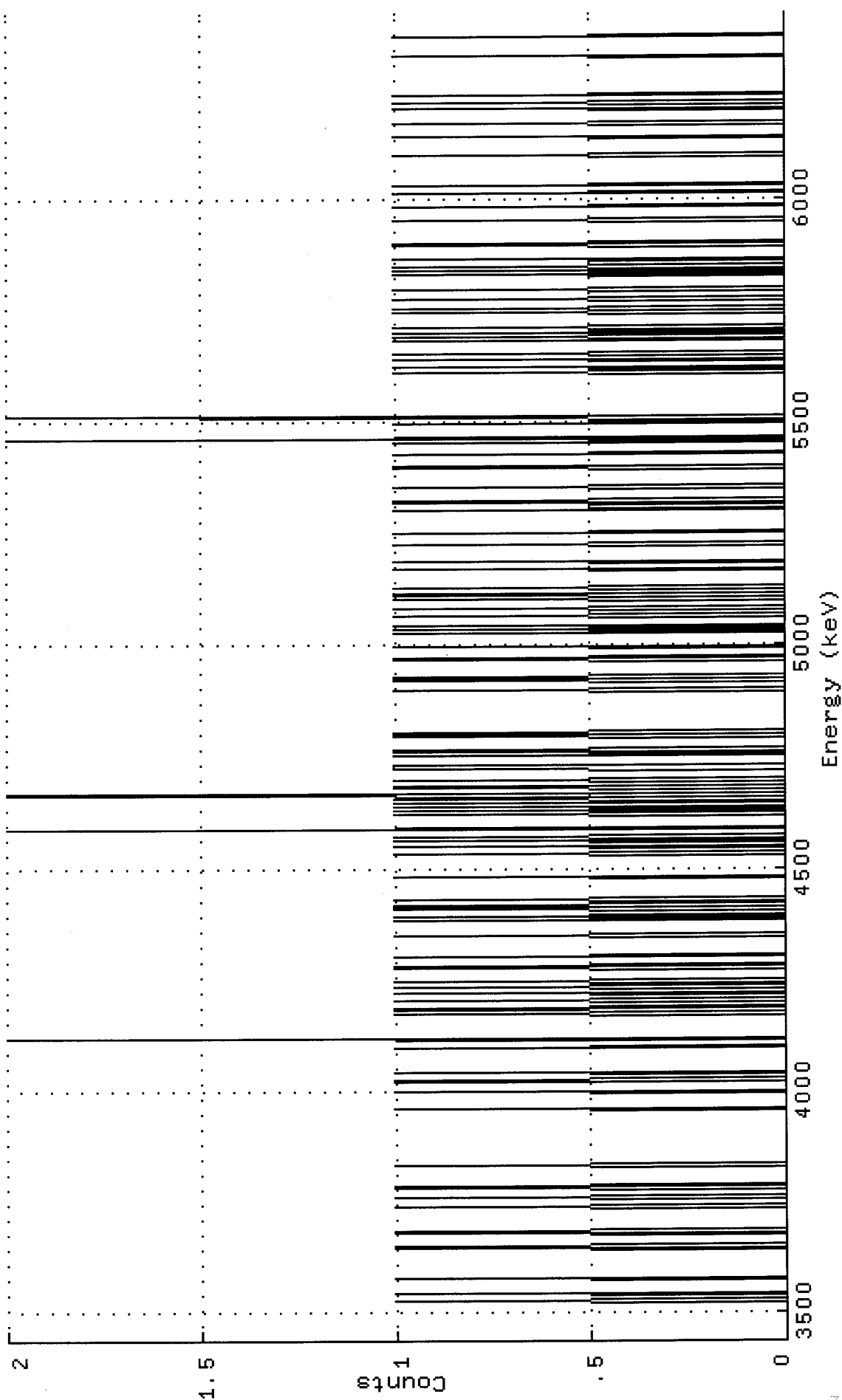
Title : 035

Sample Title: VPSCR081705SL01

Start Time: 27-AUG-2005 08:50 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42698E+03

Real Time : 0 02:50:00.50 Sample ID : 04 Energy Slope : 3.10189E+00

Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.80495E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$04_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	1	0	0	0	0	1	0	0	0	0	0
43:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
71:	0	1	0	0	0	0	0	0	0	0	1	0	1	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	1	0	0	0	0	0	0	1	0	0	0	0
113:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
183:	0	0	0	1	0	0	0	0	0	0	0	1	1	0
197:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
225:	2	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	1	0	0	1	0	1	0	0	0
253:	0	1	0	0	0	0	1	0	0	0	0	1	0	0
267:	0	1	0	0	0	0	0	0	0	0	0	1	0	1
281:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
309:	0	0	0	0	0	1	0	0	1	0	0	0	0	1
323:	1	0	1	0	0	0	1	1	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
365:	0	0	0	0	1	0	0	0	1	0	0	1	1	0
379:	0	0	0	0	2	0	0	0	0	0	0	0	0	0
393:	0	1	0	0	1	0	1	0	0	0	1	0	1	1
407:	0	2	2	0	0	0	0	1	1	0	0	0	0	1
421:	0	0	0	0	0	0	0	1	1	1	1	0	0	0
435:	0	0	0	0	1	0	0	1	1	0	0	0	0	0
449:	0	0	0	0	1	0	1	1	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
491:	0	0	0	0	1	1	1	1	0	0	0	0	0	0
505:	0	0	0	0	0	0	1	0	1	0	0	0	0	0
519:	0	0	1	0	0	0	0	0	0	0	0	0	0	1
533:	0	0	1	0	1	0	0	0	0	0	0	0	1	0
547:	0	0	0	0	1	0	0	0	0	0	0	1	0	0
561:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	1	0	0	0	0	0	1	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
603:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
631:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
645:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	1	1	0	0	0	0	0	0	0	0	0	1	0
673:	0	0	0	0	0	0	0	1	0	0	2	0	0	0
687:	0	0	0	0	0	0	0	0	1	0	0	0	1	2
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
743:	0	0	1	0	0	0	0	1	0	0	0	0	0	0
757:	0	0	0	0	1	0	1	1	0	0	1	0	0	0
771:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
785:	0	1	0	0	0	0	0	0	1	1	0	0	0	0
799:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
813:	1	0	0	1	0	0	1	1	0	0	0	0	1	0
827:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
869:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
883:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
925:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
939:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
953:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:43:47.07

Detector ID: 35	Acquisition Start: 27-AUG-2005 08:50:13.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.50
Batch Id: 0508094A-RA	Sample Id: 04
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4615.11	39	0	83.75	391.97	311	157	3.82E-03	16.0	
2	0	5276.51	27	0	55.83	618.52	530	177	2.65E-03	19.2	
3	0	5793.43	25	0	465.28	800.16	726	164	2.45E-03	20.0	

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:43:50.45

	Acquisition Start: 26-AUG-2005 12:01:39.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.20

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.30	4	0	446.67	389.00	311	157	6.67E-05	50.0	
2	0	5275.01	9	0	514.91	618.00	530	177	1.50E-04	33.3	
3	0	5814.06	3	0	350.51	807.50	726	164	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:43:50.70

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4615.11*	91	0	83.75	391.97	311	157	8.88E-03	16.1	
2	0	5276.51*	62	0	55.83	618.52	530	177	6.04E-03	19.7	
3	0	5793.43*	58	0	465.28	800.16	726	164	5.69E-03	20.2	

Flag: "*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.0 Generated 29-AUG-2005 06:43:51

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL01
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:50:13
 Sample ID : 04 Sample quantity : 1.0640 gram
 Sample type : RA Sample geometry :
 Detector name : 035 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.50 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4615.11*	91	83.75	391.97	311	157	32.3		RA-226	1.10
0	5276.51*	62	55.83	618.52	530	177	39.5		RN-222	0.749
0	5793.43*	58465.28	800.16	726	164	40.4			PO-218	0.704

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:44:09

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$05_RA.CNF

BATCH ID:	0508094A-RA	*	SAMPLE ID:	05
SAMPLE DATE:	17-AUG-2005 00:00	*	ALIQUT:	1.069E+00 gram
SAMPLE TITLE:	VPSCR081705SL02	*	DETECTOR NUMBER:	036
ACQ DATE:	27-AUG-2005 08:50	*	AVERAGE EFFICIENCY:	20.93%
ELAPSED LIVE TIME:	10200.	*	RECOVERY:	92.77%
TRACER ID:	NONE	*	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	*	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	*	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	*	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	*	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_036_26AUG05	*	BKG ELAPSED TIME:	60000.
		*	SAF:	2.34
		*		

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	79.05	0.51	100.0	1.010E+00	3.556E-01	1.802E-01
RN-222	5490.0	61.82	1.36	99.9	7.900E-01	3.158E-01	2.432E-01
RA-226	4785.0	79.39	0.17	100.0	1.014E+00	3.555E-01	1.383E-01

Analyst Jef Price

8-29-05
Date

Reviewer Alan Gregor

8/29/05
Date

Spectrum : DKA100: [ALPHA,ALUSR.ARCHIVE.S]S_0508094A-RA\$05_RA.CNF;1

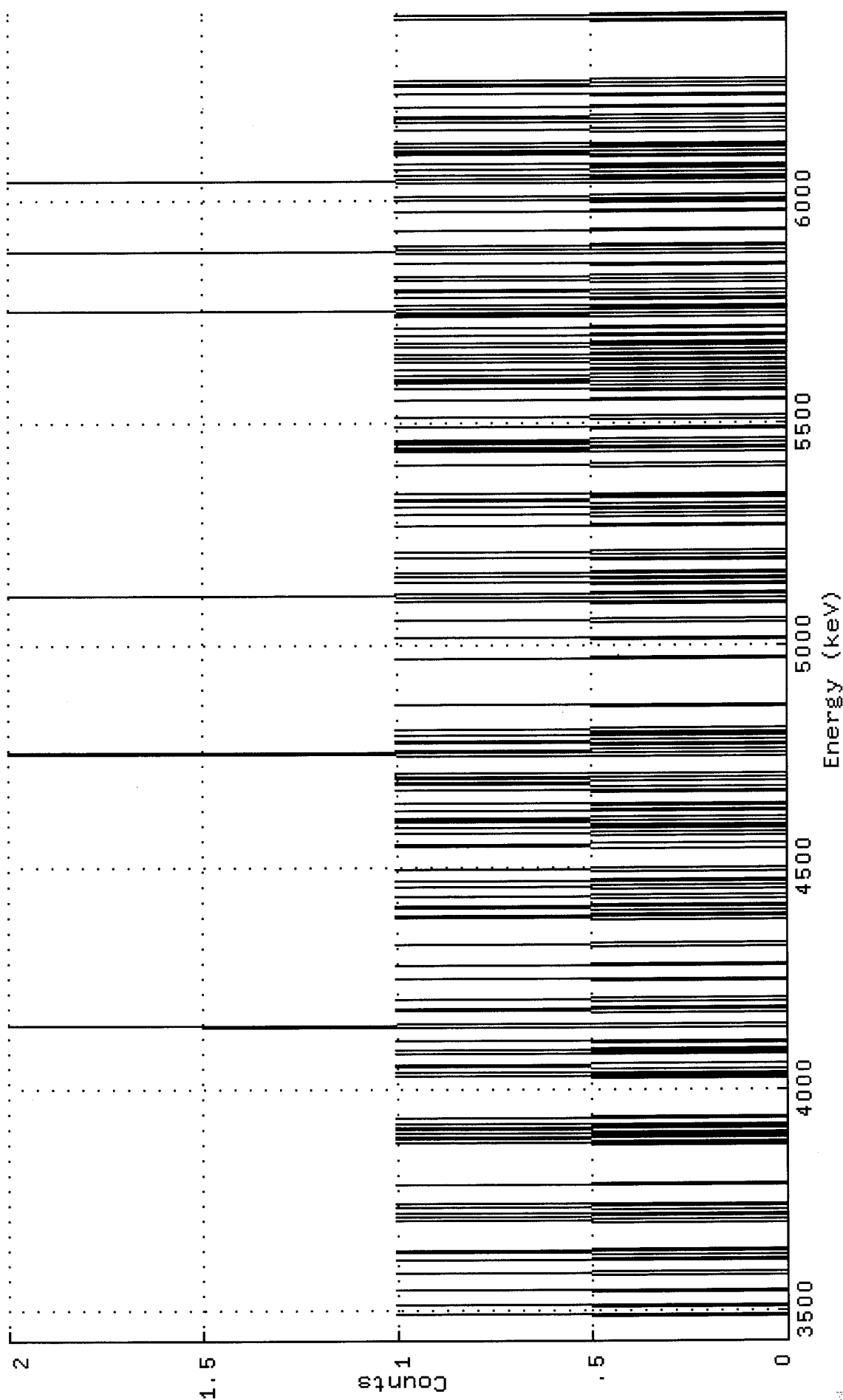
Title : 036

Sample Title: VPSCR081705SL02

Start Time: 27-AUG-2005 08:50 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42318E+03

Real Time : 0 02:50:00.50 Sample ID : 05 Energy Slope : 3.08239E+00

Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.58962E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$05_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
29:	1	0	0	0	0	0	0	0	0	0	0	1	0	0
43:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
57:	0	0	0	0	0	0	1	0	0	0	0	1	0	1
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	1	0	0	1	0	1	0
99:	0	0	0	1	0	1	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	1	0	0	1	0	1
155:	0	1	0	0	1	1	0	0	1	0	0	0	0	1
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	1	0	0	1	0	0	0	0	1	1	0	0	0
211:	0	0	0	0	0	1	0	0	1	0	0	0	0	0
225:	1	0	0	0	0	0	0	0	0	0	0	1	2	0
239:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
253:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
281:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
323:	0	0	1	0	1	0	0	0	0	0	0	1	0	0
337:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
351:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	1	1	1	0	0	0	0	0
379:	0	0	1	0	0	0	0	1	0	0	0	1	0	1
393:	1	0	0	0	0	0	1	0	0	0	0	1	0	0
407:	0	0	0	0	0	0	0	1	0	0	0	0	1	1
421:	0	0	1	0	1	1	1	0	0	0	0	0	0	0
435:	0	0	0	0	0	0	0	2	2	0	1	0	0	0
449:	0	1	0	1	0	0	0	0	1	0	0	0	1	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
561:	0	0	2	0	1	0	0	0	0	0	0	0	1	0
575:	0	0	1	0	0	0	1	0	0	0	0	0	0	0
589:	0	0	0	1	0	0	0	0	1	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	0	1	0	0	0	0	0	0	0	1	1	0	0	0
631:	0	1	0	0	0	1	1	1	0	0	0	1	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
673:	0	0	0	1	1	0	1	0	1	1	0	0	0	0
687:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
701:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
729:	1	1	0	1	0	0	1	0	0	0	0	0	0	0
743:	0	0	1	1	0	1	0	0	0	1	0	0	0	0
757:	1	1	0	0	1	0	0	0	0	0	1	0	0	0
771:	0	0	1	0	0	0	0	0	0	0	0	1	1	0
785:	0	2	0	0	0	1	0	0	0	0	0	1	0	0
799:	0	0	1	1	0	0	0	0	0	0	0	1	0	0
813:	1	0	0	0	0	0	0	0	0	0	1	0	0	0
827:	0	0	0	0	0	0	2	0	0	0	0	1	0	0
841:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
869:	0	0	0	0	1	0	0	0	1	0	0	0	0	0
883:	0	0	0	0	0	0	2	0	0	0	1	0	0	0
897:	0	1	0	0	0	1	0	0	0	0	0	0	0	0
911:	0	1	1	0	0	0	1	0	1	0	0	0	0	0
925:	0	0	0	0	0	1	0	0	0	0	0	0	1	1
939:	1	0	1	0	0	0	0	0	0	0	1	0	0	0
953:	0	0	0	0	0	0	1	0	0	0	0	0	0	1
967:	1	0	0	1	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:43:55.70

Detector ID: 36	Acquisition Start: 27-AUG-2005 08:50:33.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.50
Batch Id: 0508094A-RA	Sample Id: 05
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4623.31	34	0	5.78	397.50	314	157	3.33E-03	17.1	
2	0	5291.21	27	0	3.08	626.26	533	177	2.65E-03	19.2	
3	0	5770.05	34	0	320.57	793.88	728	164	3.33E-03	17.1	

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:44:07.90

Live Time: 0 16:40:00.00	Acquisition Start: 26-AUG-2005 12:01:42.01
	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4607.05	1	0	3.08	392.00	314	157	1.67E-05	100.0	
2	0	5276.04	8	0	363.72	621.00	533	177	1.33E-04	35.4	
3	0	5814.21	3	0	335.98	809.50	728	164	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:44:08.14

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4623.31*	79	0	5.78	397.50	314	157	7.78E-03	17.2	
2	0	5291.21*	62	0	3.08	626.26	533	177	6.06E-03	19.7	
3	0	5770.05*	79	0	320.57	793.88	728	164	7.75E-03	17.3	

Flag: "*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.0 Generated 29-AUG-2005 06:44:08

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL02
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:50:33
 Sample ID : 05 Sample quantity : 1.0686 gram
 Sample type : RA Sample geometry :
 Detector name : 036 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.50 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4623.31*	79	5.78	397.50	314	157	34.4		RA-226	0.940
0	5291.21*	62	3.08	626.26	533	177	39.4		RN-222	0.733
0	5770.05*	79320.57	793.88	728	164	34.5			PO-218	0.937

Eberline Services
Oak Ridge Laboratory

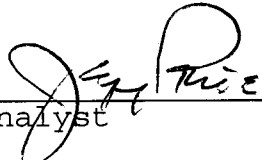
ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:44:35

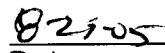
Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$06_RA.CNF

BATCH ID:	0508094A-RA	*	SAMPLE ID:	06
SAMPLE DATE:	17-AUG-2005 00:00	*	ALIQOT:	1.026E+00 gram
SAMPLE TITLE:	VPSCR081705SL03	*	DETECTOR NUMBER:	037
ACQ DATE:	27-AUG-2005 08:50	*	AVERAGE EFFICIENCY:	21.04%
ELAPSED LIVE TIME:	10200.	*	RECOVERY:	79.44%
TRACER ID:	NONE	*	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	*	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	*	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	*	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	*	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_037_26AUG05	*	BKG ELAPSED TIME:	60000.
		*	SAF:	2.12
		*		

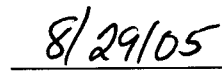
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	35.87	0.17	100.0	5.546E-01	2.731E-01	1.517E-01
RN-222	5490.0	54.78	0.34	99.9	8.475E-01	3.397E-01	1.778E-01
RA-226	4785.0	88.70	0.34	100.0	1.371E+00	4.354E-01	1.777E-01


Analyst


Date


Reviewer


Date

Spectrum : DKA100: [ALPHA.ALUSR.ARCHIVE.S]S_0508094A-RA\$06_RA.CNF;1

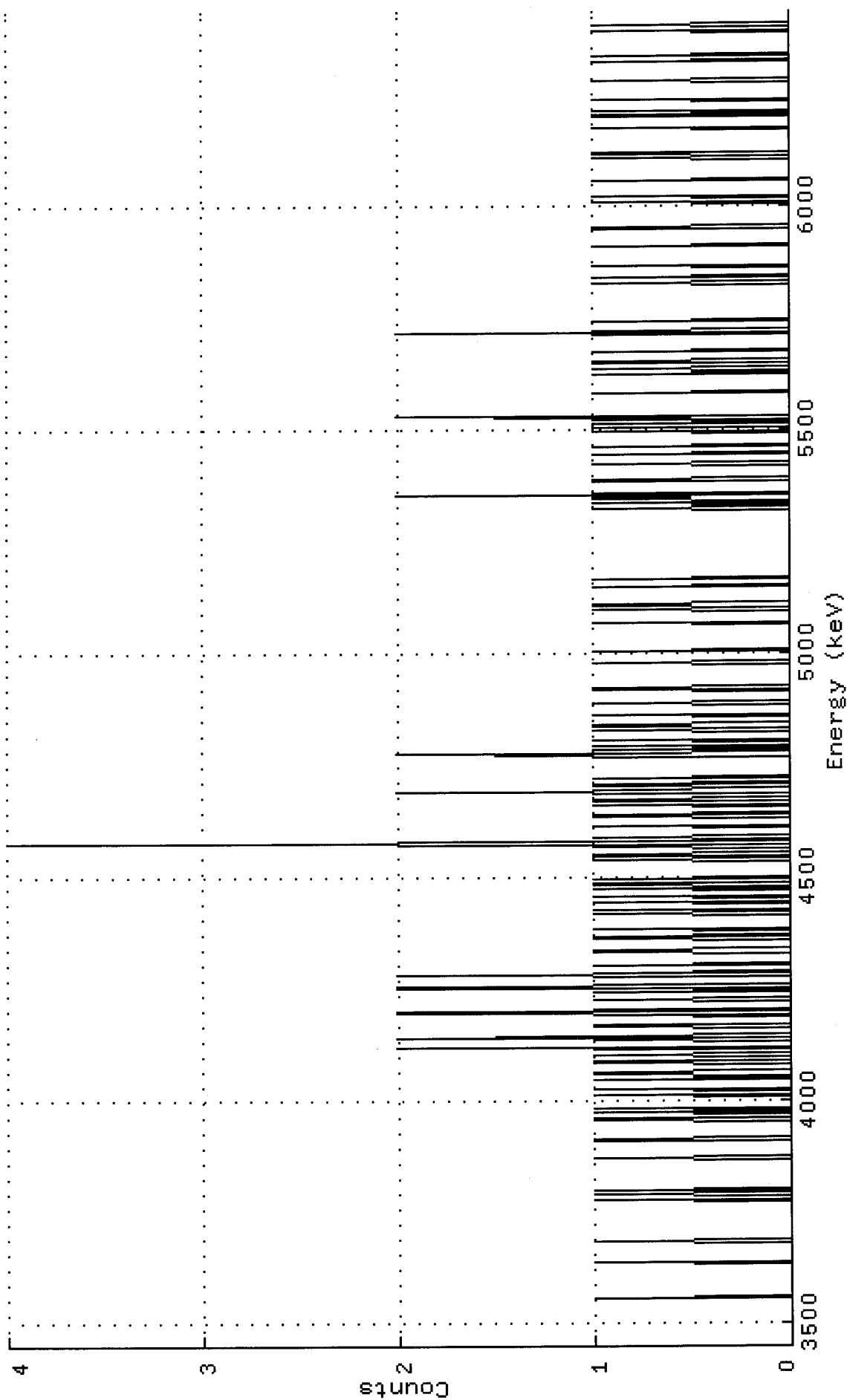
Title : 037

Sample Title: VPSCR081705SL03

Start Time: 27-AUG-2005 08:50 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.43795E+03

Real Time : 0 02:50:00.50 Sample ID : 06 Energy Slope : 3.11040E+00

Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.80693E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$06_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
113:	1	1	0	0	1	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
141:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
169:	1	0	0	0	1	0	0	1	0	0	0	0	0	0
183:	0	0	0	1	0	0	0	1	0	0	0	0	0	0
197:	0	1	0	0	0	1	1	0	0	0	0	0	0	1
211:	1	0	0	0	0	1	0	0	0	0	2	0	0	0
225:	0	0	1	0	2	1	0	0	0	0	0	0	1	1
239:	0	0	0	0	0	0	1	0	2	0	2	0	0	0
253:	0	0	0	0	1	0	0	0	0	0	1	0	0	2
267:	2	0	0	0	0	0	0	0	2	0	1	0	0	0
281:	0	0	1	0	0	0	0	0	0	0	0	1	1	1
295:	0	0	0	0	0	0	0	1	0	1	0	0	0	0
309:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
323:	1	0	0	0	0	0	1	0	0	0	1	0	0	0
337:	0	0	1	0	0	1	1	0	0	0	1	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	1	0	0	1
365:	1	0	0	0	0	0	1	1	0	4	0	0	0	1
379:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
393:	0	1	0	1	0	0	0	0	0	1	0	0	0	1
407:	1	0	0	0	0	2	1	1	0	0	1	0	1	0
421:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
435:	0	0	0	0	1	1	2	1	0	1	0	0	1	0
449:	0	0	1	0	0	0	0	0	0	0	1	0	0	1
463:	1	0	0	0	0	0	0	1	0	0	0	0	0	0
477:	0	0	1	0	0	0	0	0	0	0	0	0	1	0
491:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
519:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
547:	0	0	0	0	1	0	0	1	1	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
575:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
631:	0	0	1	0	0	1	1	1	0	2	0	0	0	0
645:	0	0	0	0	0	1	1	0	0	0	0	0	0	0
659:	0	0	0	0	1	0	0	0	0	0	0	0	1	0
673:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
687:	0	1	0	0	0	1	1	1	0	0	1	0	1	2
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	1	0	0	0	1	0	0	0	0
743:	1	1	0	0	0	0	0	0	0	1	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	2	0	1	0	0
771:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
813:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	1	1	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	1	0	0	0	0	1	0	0	0	0	0	0	0	0
883:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	1	0	0	1	1	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
939:	1	0	1	0	1	0	0	0	0	0	0	0	0	1
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	1	0	0	0	0	1	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1009:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:44:13.27

Detector ID: 37	Acquisition Start: 27-AUG-2005 08:50:56.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.50
Batch Id: 0508094A-RA	Sample Id: 06
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4629.18	42	0	3.11	391.90	307	156	4.12E-03	15.4	
2	0	5358.14	26	0	0.00	641.23	525	176	2.55E-03	19.6	
3	0	5794.02	17	0	3.11	794.12	720	164	1.67E-03	24.3	

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:44:33.99

Live Time: 0 16:40:00.00	Acquisition Start: 26-AUG-2005 12:01:45.01
	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4607.18	2	0	46.66	384.50	307	156	3.33E-05	70.7	
2	0	5275.28	2	0	0.00	612.50	525	176	3.33E-05	70.7	
3	0	5814.86	1	0	3.11	801.50	720	164	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:44:34.24

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4629.18*	89	0	3.11	391.90	307	156	8.70E-03	15.5	
2	0	5358.14*	55	0	0.00	641.23	525	176	5.37E-03	19.7	
3	0	5794.02*	36	0	3.11	794.12	720	164	3.52E-03	24.4	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL03
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:50:56
 Sample ID : 06 Sample quantity : 1.0256 gram
 Sample type : RA Sample geometry :
 Detector name : 037 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.50 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4629.18*	89	3.11	391.90	307	156	31.0		RA-226	1.09
0	5358.14*	55	0.00	641.23	525	176	39.5		RN-222	0.673
0	5794.02*	36	3.11	794.12	720	164	48.7		PO-218	0.441

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:44:54

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$07_RA.CNF

*
BATCH ID: 0508094A-RA * SAMPLE ID: 07
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.014E+00 gram
SAMPLE TITLE: VPSCR081705SL04 * DETECTOR NUMBER: 038
ACQ DATE: 27-AUG-2005 08:51 * AVERAGE EFFICIENCY: 20.12%
ELAPSED LIVE TIME: 10200. * RECOVERY: 86.50%
TRACER ID: NONE * TRACER FWHM (kev): 0.00
LAMBDA VALUE: 0. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 0.000 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_038_26AUG05 * BKG ELAPSED TIME: 60000.
* SAF: 2.16
*

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	42.52	0.68	100.0	6.384E-01	2.936E-01	2.122E-01
RN-222	5490.0	61.45	1.19	99.9	9.231E-01	3.556E-01	2.525E-01
RA-226	4785.0	57.64	0.68	100.0	8.652E-01	3.424E-01	2.122E-01



Analyst

8-29-05

Date



Reviewer

8/29/05

Date

Spectrum : DKA100:[ALPHA,ALUSR.ARCHIVE.S]S_0508094A-RA\$07_RA.CNF;1

Title : 038

Sample Title: VPSCR081705SL04

Start Time: 27-AUG-2005 08:51

Sample Time: 17-AUG-2005 00:00

Energy Offset: 3.45434E+03

Real Time : 0 02:50:00.40

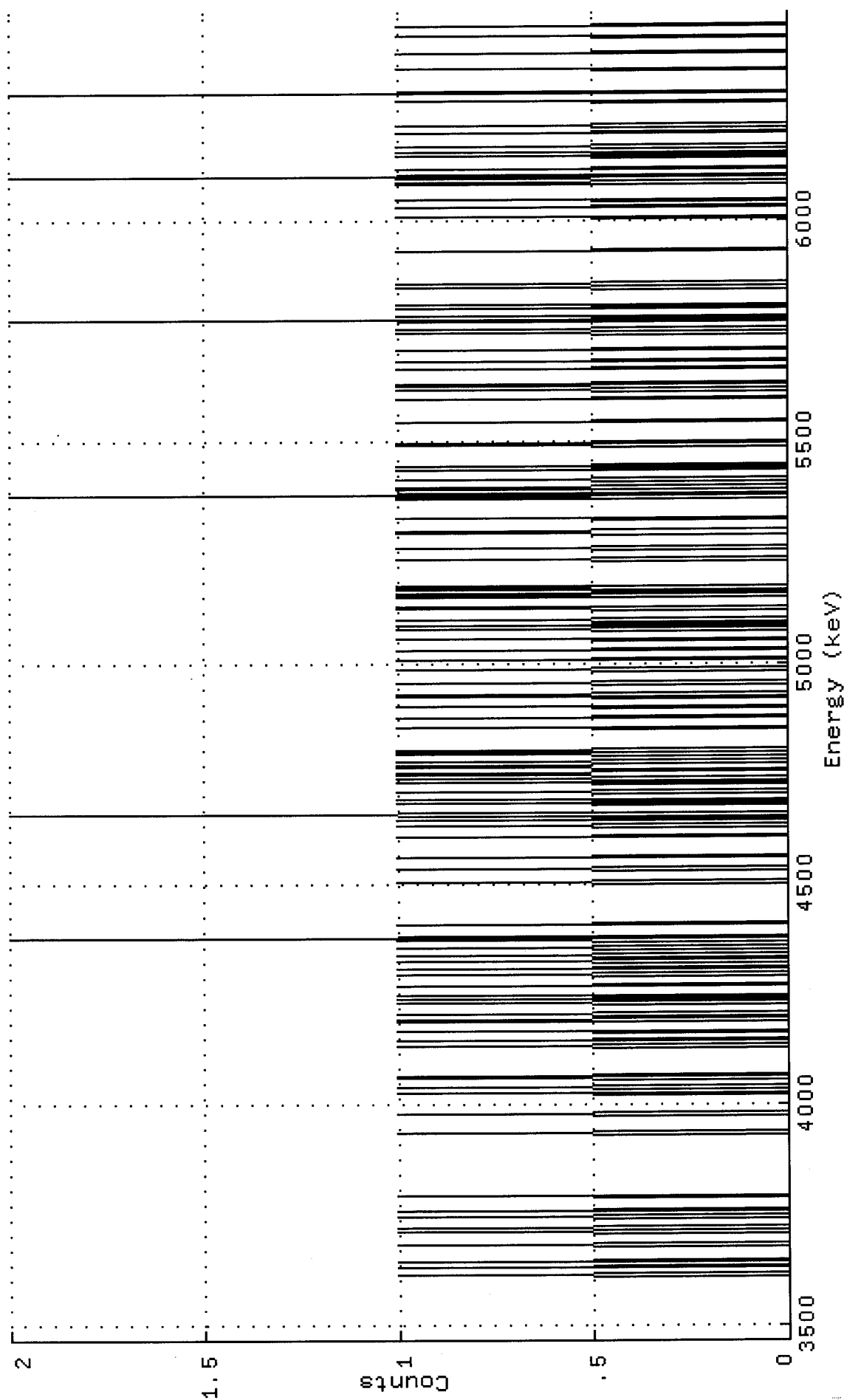
Sample ID : 07

Energy Slope : 3.08936E+00

Live Time : 0 02:50:00.00

Sample Type: RA

Energy Quad : -1.46447E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$07_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
57:	0	1	0	0	0	1	0	0	0	0	0	0	0	0
71:	0	0	0	1	0	0	0	0	0	0	0	0	0	1
85:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
99:	0	1	0	0	0	0	0	0	0	0	0	1	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	1	0	0	0	0	1	0	0	0	0	0
197:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
225:	0	0	1	0	0	0	0	0	1	0	0	0	0	0
239:	0	0	1	1	0	0	0	1	0	0	0	0	0	0
253:	0	0	1	0	0	1	0	1	0	0	0	0	0	0
267:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
281:	1	0	0	0	0	1	0	0	0	1	1	0	0	0
295:	0	1	0	0	0	0	0	1	0	2	0	0	0	0
309:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
351:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
393:	1	0	0	0	2	0	0	0	0	0	0	0	1	0
407:	0	1	0	0	0	0	0	1	0	0	0	0	0	0
421:	1	0	0	1	0	0	1	1	1	0	0	0	1	1
435:	1	0	1	0	0	0	0	0	1	1	0	1	0	0
449:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
463:	1	0	0	0	0	0	0	0	1	0	0	0	0	0
477:	0	0	1	0	0	0	0	0	0	1	0	1	0	0
491:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
505:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
519:	0	0	0	1	0	0	0	0	0	0	0	1	0	0
533:	0	0	0	0	0	1	0	0	1	0	0	0	1	0
547:	0	0	0	0	0	0	0	1	1	0	0	0	0	0
561:	0	0	1	1	0	1	0	1	0	1	1	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	1	0	0	0	0	0	0	0	0	1	0
603:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
617:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
631:	0	0	0	0	0	0	0	0	0	1	1	0	2	0
645:	0	0	1	1	0	0	0	0	0	1	0	0	0	0
659:	0	0	0	1	0	0	1	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	1	0	1	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	1	0	0	0	0	0	0	1	0	0	1	0
729:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
743:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
757:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
771:	0	1	0	0	0	0	0	0	2	0	0	1	0	0
785:	0	0	0	0	1	0	0	1	0	0	0	0	0	0
799:	0	0	0	0	0	0	1	0	0	1	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
869:	1	0	0	0	0	1	0	0	0	0	0	0	0	0
883:	0	0	0	0	1	1	0	0	1	0	2	0	0	0
897:	0	0	1	0	0	0	0	0	0	0	0	0	1	0
911:	0	1	0	0	0	0	1	0	0	0	0	0	0	0
925:	0	0	0	1	0	0	0	0	1	1	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	1	0	0	0	0	0	0	2	0	0	0	0	1	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
995:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
1009:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:44:39.28

Detector ID: 38	Acquisition Start: 27-AUG-2005 08:51:13.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.40
Batch Id: 0508094A-RA	Sample Id: 07
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4652.45	27	0290.40	395.22	302	156	2.65E-03	19.2		
2	0	5259.05	29	0 3.09	601.31	520	175	2.84E-03	18.6		
3	0	5782.38	20	0 3.09	782.60	713	162	1.96E-03	22.4		

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:44:52.98

Live Time: 0 16:40:00.00	Acquisition Start: 26-AUG-2005 12:01:48.01
	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4605.66	4	0240.97	379.50	302	156	6.67E-05	50.0		
2	0	5275.62	7	0352.19	607.00	520	175	1.17E-04	37.8		
3	0	5813.54	4	0370.72	793.50	713	162	6.67E-05	50.0		

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:44:53.24

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4652.45*	58	0290.40	395.22	302	156	5.65E-03	19.5		
2	0	5259.05*	61	0 3.09	601.31	520	175	6.02E-03	18.9		
3	0	5782.38*	43	0 3.09	782.60	713	162	4.17E-03	22.7		

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL04
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:51:13
 Sample ID : 07 Sample quantity : 1.0143 gram
 Sample type : RA Sample geometry :
 Detector name : 038 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.40 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4652.45*	58290.40	395.22	302	156	39.0			RA-226	0.748
0	5259.05*	61	3.09	601.31	520	175	37.9		RN-222	0.799
0	5782.38*	43	3.09	782.60	713	162	45.5		PO-218	0.552

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:45:09

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$08_RA.CNF

BATCH ID:	0508094A-RA	*	SAMPLE ID:	08
SAMPLE DATE:	17-AUG-2005 00:00	*	ALIQOT:	1.171E+00 gram
SAMPLE TITLE:	VPSCR081705SL05	*	DETECTOR NUMBER:	039
ACQ DATE:	27-AUG-2005 08:51	*	AVERAGE EFFICIENCY:	20.45%
ELAPSED LIVE TIME:	10200.	*	RECOVERY:	83.77%
TRACER ID:	NONE	*	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	*	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	*	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	*	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	*	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_039_26AUG05	*	BKG ELAPSED TIME:	60000.
		*	SAF:	2.31
		*		

NUCLIDE ACTIVITY SUMMARY


NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	48.17	0.34	100.0	6.363E-01	2.832E-01	1.654E-01
RN-222	5490.0	64.17	0.51	99.9	8.481E-01	3.285E-01	1.841E-01
RA-226	4785.0	92.06	0.34	100.0	1.216E+00	3.951E-01	1.654E-01



Analyst

8-29-05

Date



Reviewer

8/29/05

Date

Spectrum : DKA100: [ALPHA.ALUSR.ARCHIVE.S]S_0508094A-RA\$08_RA.CNF;1

Title : 039

Sample Title: VPSCR081705SL05

Start Time: 27-AUG-2005 08:51

Real Time : 0 02:50:00.40

Live Time : 0 02:50:00.00

Sample Time: 17-AUG-2005 00:00

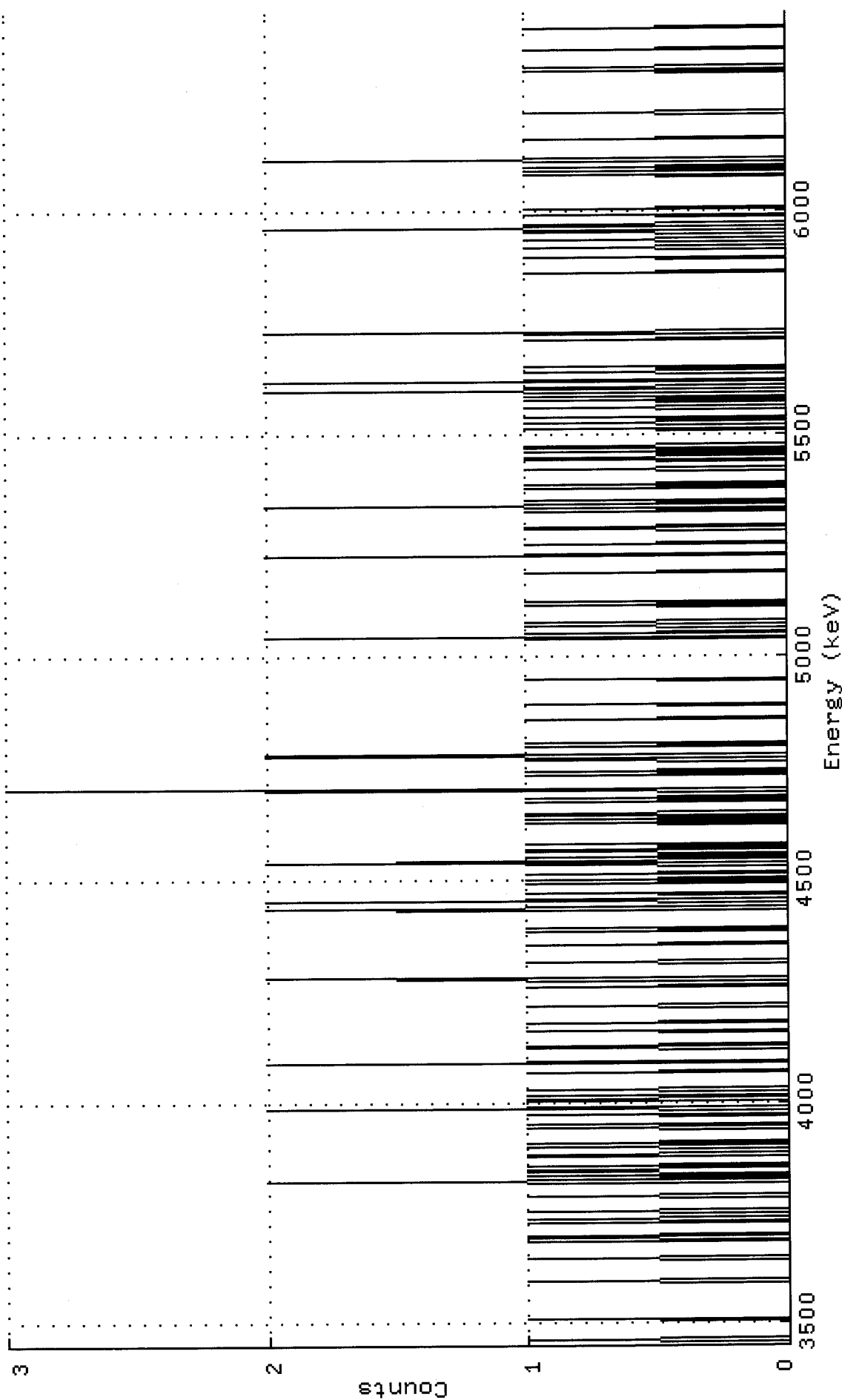
Sample ID : 08

Sample Type: RA

Energy Offset: 3.43960E+03

Energy Slope : 3.09399E+00

Energy Quad : -1.57003E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$08_RA

Channel

1:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
71:	0	0	0	0	0	0	0	0	0	1	0	1	0	1
85:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
99:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
113:	1	0	0	0	0	0	0	0	0	0	0	2	0	1
127:	0	1	0	0	1	1	1	0	0	1	0	0	0	0
141:	0	0	1	1	0	0	0	0	1	1	0	0	1	0
155:	0	0	0	0	0	0	0	0	1	1	0	1	0	0
169:	0	0	0	0	1	0	0	0	1	2	0	0	0	0
183:	0	1	1	0	1	0	0	0	0	1	0	0	0	0
197:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
211:	0	2	0	0	0	0	0	0	0	0	0	0	1	0
225:	1	0	0	0	0	0	0	0	0	0	1	0	0	0
239:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
253:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	1	0	0	0	1	1	2	0	0	0	0	0
281:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
295:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
309:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	1	2	0	0	0	0	1	2	0	0	0
337:	0	1	0	0	0	0	0	0	0	1	0	0	1	0
351:	0	0	1	0	0	0	0	0	0	1	0	2	1	0
365:	0	1	0	0	0	1	0	1	0	0	1	0	0	0
379:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
393:	0	1	0	0	1	0	1	0	0	0	0	0	0	0
407:	0	1	0	0	1	0	0	0	0	1	3	0	0	0
421:	0	0	0	0	0	0	0	1	0	0	1	0	0	0
435:	0	0	0	0	1	1	0	2	2	0	0	0	0	0
449:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
477:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	0	2
533:	0	0	0	1	0	0	0	0	1	0	0	1	0	0
547:	0	0	0	0	0	0	0	0	0	0	1	0	0	1
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
589:	0	0	0	0	0	0	0	2	0	0	0	0	0	0
603:	0	0	1	0	0	0	0	0	0	0	0	0	0	1
617:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
631:	0	1	0	2	0	0	0	1	0	0	0	0	0	0
645:	0	0	0	1	0	0	1	0	0	0	0	0	0	0
659:	0	0	0	1	0	0	0	0	0	0	1	0	1	0
673:	0	0	1	0	0	1	0	1	0	0	0	0	0	0
687:	0	0	0	0	0	0	1	0	0	0	0	1	0	0
701:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
715:	1	0	0	1	0	0	0	0	2	0	0	1	0	0
729:	0	0	2	0	0	0	0	0	0	1	0	0	0	1
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	1	0	0	0	0	2	1
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
827:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
841:	0	1	0	0	0	0	0	1	0	0	2	0	0	1
855:	0	0	0	0	0	0	1	0	0	0	0	0	1	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
897:	1	0	0	1	0	0	0	0	0	2	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
981:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:44:58.34

Detector ID: 39	Acquisition Start: 27-AUG-2005 08:51:33.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.40
Batch Id: 0508094A-RA	Sample Id: 08
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.99	40	0361.16	384.83	307	156	3.92E-03	15.8		
2	0	5292.24	28	0318.68	618.18	525	176	2.75E-03	18.9		
3	0	5792.77	21	0399.12	792.43	719	163	2.06E-03	21.8		

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:45:07.33

Live Time: 0 16:40:00.00	Acquisition Start: 26-AUG-2005 12:01:50.01
	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.03	2	0352.71	384.50	307	156	3.33E-05	70.7		
2	0	5275.76	3	0389.84	612.50	525	176	5.00E-05	57.7		
3	0	5814.31	2	0 74.26	800.00	719	163	3.33E-05	70.7		

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:45:07.59

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.99*	92	0361.16	384.83	307	156	9.03E-03	15.9		
2	0	5292.24*	64	0318.68	618.18	525	176	6.29E-03	19.1		
3	0	5792.77*	48	0399.12	792.43	719	163	4.72E-03	22.0		

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL05
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:51:33
 Sample ID : 08 Sample quantity : 1.1710 gram
 Sample type : RA Sample geometry :
 Detector name : 039 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.40 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4606.99*	92361.16	384.83	307	156	31.7			RA-226	1.02
0	5292.24*	64318.68	618.18	525	176	38.1			RN-222	0.710
0	5792.77*	48399.12	792.43	719	163	44.0			PO-218	0.533

Eberline Services
Oak Ridge Laboratory


ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:45:29

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$09_RA.CNF

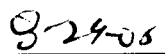
BATCH ID:	0508094A-RA	SAMPLE ID:	09
SAMPLE DATE:	17-AUG-2005 00:00	ALIQOT:	1.010E+00 gram
SAMPLE TITLE:	VPSCR081705SL06	DETECTOR NUMBER:	040
ACQ DATE:	27-AUG-2005 08:51	AVERAGE EFFICIENCY:	20.89%
ELAPSED LIVE TIME:	10200.	RECOVERY:	89.63%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_040_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	2.00

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	124.81	1.19	100.0	1.750E+00	4.615E-01	2.182E-01
RN-222	5490.0	114.98	1.02	99.9	1.613E+00	4.419E-01	2.078E-01
RA-226	4785.0	123.66	0.34	100.0	1.733E+00	4.576E-01	1.520E-01



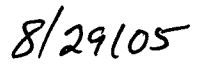
Analyst



Date



Reviewer



Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-RA\$09_RA.CNF;1

Title : 040

Sample Title: VPSCR081705SL06

Start Time: 27-AUG-2005 08:51

Sample Time: 17-AUG-2005 00:00

Energy Offset: 3.43216E+03

Real Time : 0 02:50:00.40

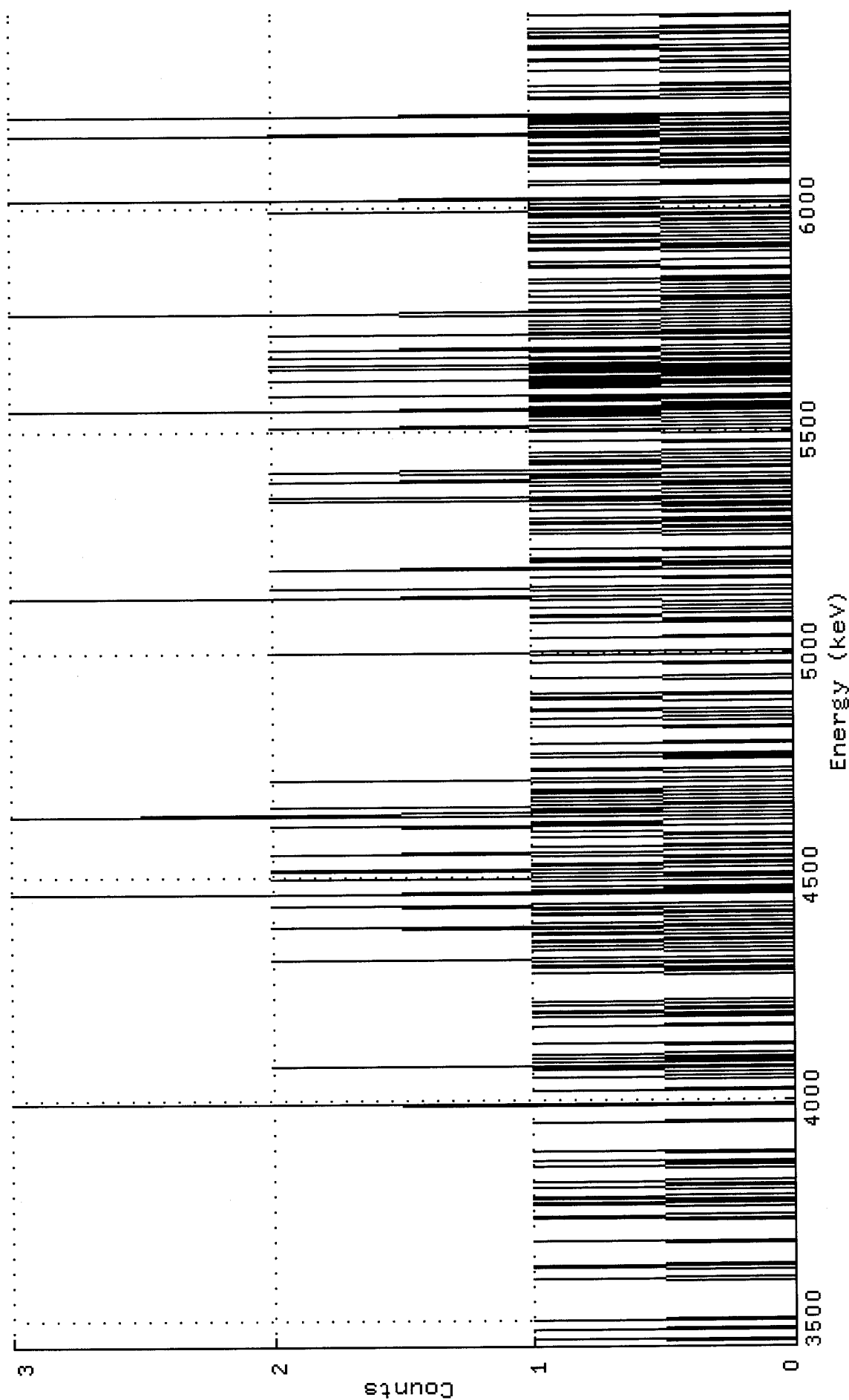
Sample ID : 09

Energy Slope : 3.09948E+00

Live Time : 0 02:50:00.00

Sample Type: RA

Energy Quad : -1.65420E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$09_RA

Channel

1:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
15:	0	1	0	0	0	0	0	0	1	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
57:	0	0	0	0	1	0	1	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
99:	1	0	0	0	0	0	0	0	1	0	1	0	1	0
113:	1	0	0	0	0	0	0	1	0	0	0	1	0	0
127:	0	0	0	0	0	0	0	0	1	0	0	0	1	0
141:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
169:	0	0	0	0	0	0	0	0	0	0	0	0	3	0
183:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
197:	0	0	0	0	1	0	0	0	0	0	1	0	2	0
211:	0	0	1	0	1	0	0	1	0	0	0	0	0	0
225:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	1	0	0	0	0	0	0	1	0	0	1	1	0
253:	0	0	1	0	0	1	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
281:	0	0	1	0	1	0	0	0	2	0	0	0	0	0
295:	0	1	0	0	1	0	0	1	0	1	0	0	0	1
309:	1	0	0	1	2	0	0	1	0	0	0	0	0	1
323:	0	1	0	1	0	1	2	0	0	0	0	0	0	0
337:	0	3	0	1	0	0	1	0	0	0	0	0	2	0
351:	0	0	1	0	2	2	1	0	1	0	1	0	0	0
365:	0	1	0	2	1	0	0	0	0	1	0	0	0	0
379:	0	0	1	0	0	0	1	1	1	1	2	0	1	1
393:	0	0	0	0	3	2	1	0	1	0	0	2	0	0
407:	0	1	0	0	1	0	0	1	0	1	1	0	0	0
421:	0	0	0	2	0	0	0	0	0	0	1	1	0	0
435:	0	0	0	0	0	0	1	0	0	1	0	0	0	0
449:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
463:	0	1	0	0	0	0	0	1	1	0	0	0	0	1
477:	1	0	0	0	0	0	0	0	1	1	1	0	1	0
491:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
505:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
519:	0	2	0	0	0	0	0	0	0	0	0	0	0	1
533:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
547:	0	1	1	0	0	0	0	0	1	0	0	0	0	0
561:	1	1	3	0	0	0	0	0	0	2	0	0	0	0
575:	0	0	0	1	0	0	0	0	0	0	2	1	0	0
589:	0	1	0	1	1	0	0	0	0	0	0	1	0	0
603:	0	0	0	0	0	0	0	0	0	1	1	0	1	1
617:	0	0	0	1	0	1	0	1	0	0	0	0	0	0
631:	0	0	0	1	0	0	1	2	0	2	0	0	0	0
645:	1	0	0	0	0	1	0	0	2	1	1	0	1	0
659:	1	2	1	1	0	0	0	1	0	1	1	0	0	1
673:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
687:	0	0	0	0	1	0	0	2	1	0	0	0	0	1
701:	0	0	1	1	0	1	0	3	0	0	1	0	0	0
715:	1	0	1	0	2	0	0	0	0	0	0	1	1	0
729:	1	0	2	0	1	1	0	0	1	0	0	2	0	0
743:	2	0	1	0	0	0	2	1	0	0	0	1	0	2
757:	1	0	0	0	0	0	0	1	0	0	0	2	0	0
771:	0	1	0	0	1	0	0	1	0	0	0	0	0	3
785:	0	0	1	0	0	0	0	0	1	0	0	0	1	0
799:	0	0	0	1	0	0	0	0	0	1	0	0	0	1
813:	0	0	0	0	0	0	0	1	0	1	1	1	1	0
827:	0	0	0	0	0	0	0	1	0	1	0	0	0	1
841:	0	1	1	1	0	1	0	0	0	0	0	1	0	0
855:	1	0	0	0	0	1	1	0	0	2	2	0	1	1
869:	1	1	0	0	1	3	0	0	0	0	0	0	0	0
883:	0	0	0	1	0	1	0	0	0	0	0	0	0	0
897:	0	0	0	0	1	0	1	0	1	0	1	0	0	0
911:	1	1	1	0	0	0	0	1	0	1	0	0	0	1
925:	0	3	1	0	1	0	1	1	0	0	1	1	0	1
939:	1	0	3	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	1	1	0	0	0	0	1	0	0	0	0	1
967:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
981:	0	0	0	0	1	0	1	0	0	0	0	0	0	1
995:	0	1	1	0	0	0	0	0	0	1	1	1	0	1
1009:	0	0	0	1	0	0	0	0	0	0	0	0	0	1
1023:	0	0	0	1	0	0	0	0	0	0	0	0	0	1

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:45:12.74

Detector ID: 40	Acquisition Start: 27-AUG-2005 08:51:50.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.40
Batch Id: 0508094A-RA	Sample Id: 09
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4572.36	62	0346.37	375.39	309	156	6.08E-03	12.7		
2	0	5304.57	58	0409.85	624.95	527	177	5.69E-03	13.1		
3	0	5808.58	63	0445.55	800.95	722	163	6.18E-03	12.6		

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:45:27.77

	Acquisition Start: 26-AUG-2005 12:01:53.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4605.40	2	0176.67	386.50	309	156	3.33E-05	70.7		
2	0	5275.78	6	0 3.10	615.00	527	177	1.00E-04	40.8		
3	0	5814.38	7	0 4.55	803.00	722	163	1.17E-04	37.8		

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:45:28.02

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4572.36*	124	0346.37	375.39	309	156	1.21E-02	12.7		
2	0	5304.57*	115	0409.85	624.95	527	177	1.13E-02	13.3		
3	0	5808.58*	125	0445.55	800.95	722	163	1.22E-02	12.7		

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL06
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:51:50
 Sample ID : 09 Sample quantity : 1.0096 gram
 Sample type : RA Sample geometry :
 Detector name : 040 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.40 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4572.36*	124346.37	375.39	309	156	25.5			RA-226	1.55
0	5304.57*	115409.85	624.95	527	177	26.5			RN-222	1.45
0	5808.58*	125445.55	800.95	722	163	25.4			PO-218	1.57

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:45:46

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$10_RA.CNF

*
BATCH ID: 0508094A-RA * SAMPLE ID: 10
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.029E+00 gram
SAMPLE TITLE: VPSCR081705SL07 * DETECTOR NUMBER: 041
ACQ DATE: 27-AUG-2005 08:52 * AVERAGE EFFICIENCY: 21.11%
ELAPSED LIVE TIME: 10200. * RECOVERY: 85.76%
TRACER ID: NONE * TRACER FWHM (kev): 0.00
LAMBDA VALUE: 0. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 0.000 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_041_26AUG05 * BKG ELAPSED TIME: 60000.
* SAF: 2.16

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	79.07	0.85	100.0	1.125E+00	3.822E-01	2.151E-01
RN-222	5490.0	84.07	0.17	99.9	1.197E+00	3.931E-01	1.423E-01
RA-226	4785.0	96.86	0.34	100.0	1.378E+00	4.233E-01	1.666E-01

Analyst

Date

Reviewer

Date

Spectrum : DKA100: [ALPHA.ALUSR.ARCHIVE.S]S_0508094A-RA\$10_RA.CNF;1

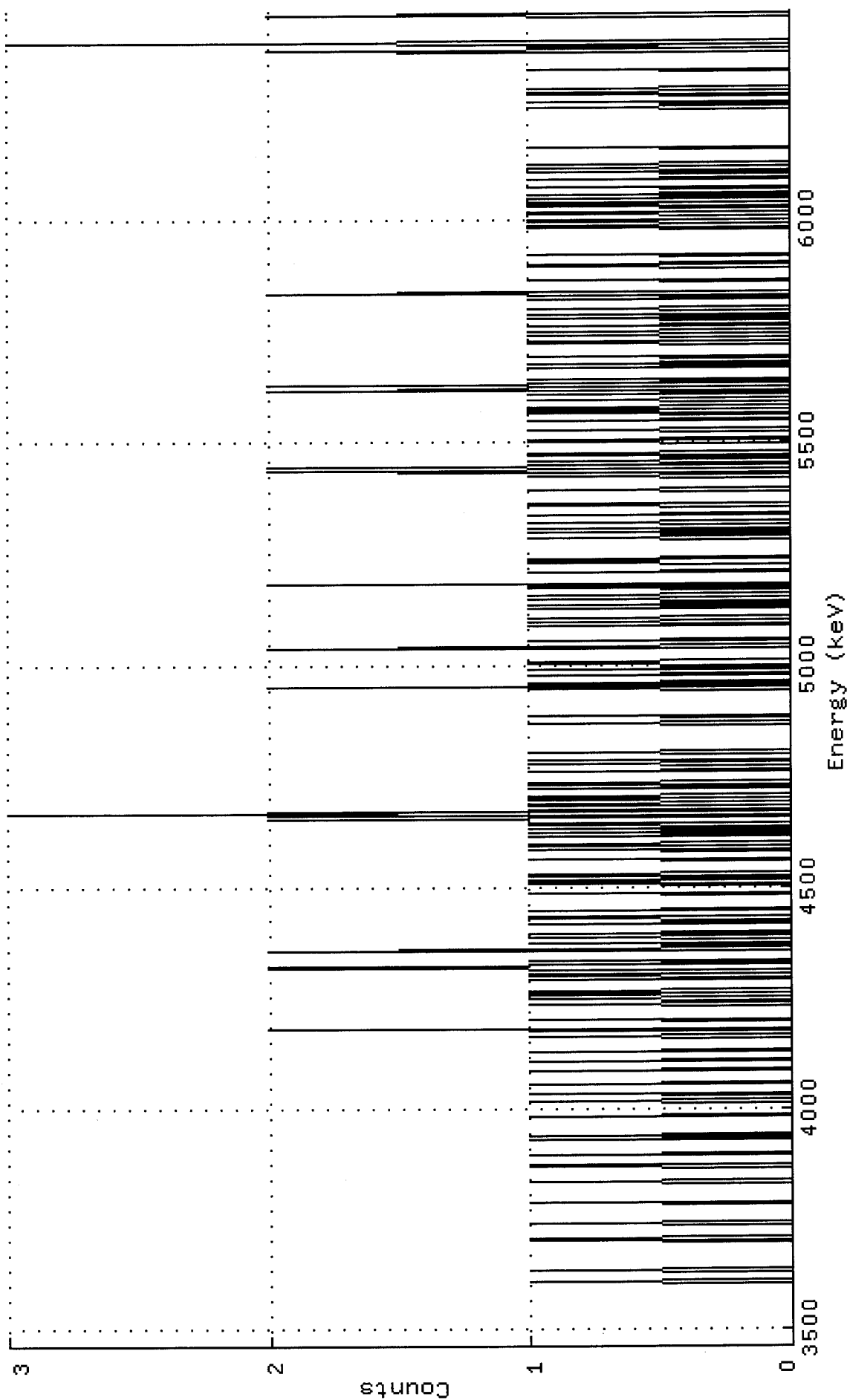
Title : 041

Sample Title: VPSCR081705SL07

Start Time: 27-AUG-2005 08:52 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45145E+03

Real Time : 0 02:50:00.40 Sample ID : 10 Energy Slope : 3.11669E+00

Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.68087E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$10_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
57:	0	1	1	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
85:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
127:	0	0	0	0	0	0	0	0	1	1	0	0	0	0
141:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
155:	1	0	0	1	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
183:	1	0	0	0	0	1	0	0	0	0	0	0	0	1
197:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
211:	0	0	1	0	0	0	0	0	0	1	0	0	0	0
225:	0	0	0	0	0	0	1	0	0	0	0	2	0	0
239:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
253:	0	0	1	0	0	0	1	0	0	1	1	0	1	0
267:	0	0	0	0	0	0	0	1	0	1	1	0	0	0
281:	0	2	2	0	0	0	1	0	0	0	0	0	0	0
295:	2	1	0	0	0	1	0	0	0	1	1	0	0	1
309:	0	0	0	0	0	0	1	0	0	0	1	1	0	0
323:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
337:	1	0	0	0	0	0	0	1	0	1	0	1	0	1
351:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
365:	0	0	0	0	0	1	0	0	0	1	1	0	0	0
379:	0	0	1	0	1	0	0	1	0	0	1	1	1	1
393:	1	2	0	0	1	3	0	2	0	0	0	1	1	0
407:	0	1	0	1	1	0	0	0	0	0	1	0	1	0
421:	1	0	0	0	0	0	0	0	0	1	0	0	0	0
435:	1	1	0	1	0	0	0	0	0	1	0	0	0	0
449:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	1	0	0	0	0	1	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	1	0	2	0	0	1	0	0	0	0	0	1	0
505:	0	0	1	0	0	0	1	1	1	0	0	0	0	0
519:	0	0	0	0	2	1	0	0	0	0	1	0	0	0
533:	0	0	0	0	0	0	0	0	1	0	1	0	0	1
547:	0	0	0	0	0	0	0	1	0	0	1	0	0	0
561:	1	0	0	1	0	0	0	0	1	0	0	2	0	0
575:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
589:	1	1	0	1	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	1	0	0	0	1	0	0	1	0
617:	0	0	0	1	0	0	0	0	0	1	0	0	0	0
631:	0	0	1	1	0	0	0	0	0	0	0	0	0	0
645:	1	0	0	0	0	0	0	0	0	0	1	1	0	0
659:	1	2	0	0	2	0	0	0	1	0	0	0	1	0
673:	1	0	0	0	0	0	0	0	0	1	0	1	0	0
687:	0	0	0	0	1	0	0	0	0	0	0	0	1	0
701:	0	0	0	1	0	1	1	0	1	0	0	0	0	0
715:	1	0	0	0	0	1	0	0	2	1	1	0	2	0
729:	0	0	1	0	0	0	0	0	0	0	0	0	1	0
743:	0	1	0	0	0	0	1	0	0	0	0	0	0	0
757:	0	0	0	1	1	0	0	0	0	1	0	0	1	0
771:	0	0	0	1	0	0	0	0	1	0	0	1	0	0
785:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
799:	2	1	0	0	0	0	0	0	0	0	1	0	0	0
813:	0	0	0	0	0	0	0	1	0	1	0	0	0	0
827:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
855:	1	1	0	0	0	0	1	1	0	0	0	0	1	0
869:	1	1	0	0	0	1	0	0	1	0	0	0	0	1
883:	0	0	0	0	0	0	1	0	0	0	0	1	0	0
897:	0	1	0	0	1	0	0	0	0	0	0	0	0	0
911:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	1	0	0	0	1	0
953:	0	0	0	0	1	0	1	0	0	1	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	1	2	0
995:	0	1	0	0	3	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	2	1
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:45:33.36

Detector ID: 41	Acquisition Start: 27-AUG-2005 08:52:07.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.40
Batch Id: 0508094A-RA	Sample Id: 10
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4613.31	45	0	20.98	380.60	301	155	4.41E-03	14.9	
2	0	5283.96	39	0	439.39	607.90	518	175	3.82E-03	16.0	
3	0	5801.95	37	0	241.45	787.62	712	162	3.63E-03	16.4	

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:45:44.37

```

Live Time:      0 16:40:00.00
Acquisition Start: 26-AUG-2005 12:01:56.01
Real Time:      0 16:40:00.10

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4605.54	2	0	52.98	378.00	301	155	3.33E-05	70.7	
2	0	5275.52	1	0	3.12	605.00	518	175	1.67E-05	100.0	
3	0	5815.86	5	0	221.29	792.50	712	162	8.33E-05	44.7	

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:45:44.62

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4613.31*	97	0	20.98	380.60	301	155	9.50E-03	15.0	
2	0	5283.96*	84	0	439.39	607.90	518	175	8.24E-03	16.0	
3	0	5801.95*	79	0	241.45	787.62	712	162	7.75E-03	16.6	

Flag: "*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.0 Generated 29-AUG-2005 06:45:45

```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL07
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:52:07
Sample ID        : 10 Sample quantity : 1.0288 gram
Sample type      : RA Sample geometry :
Detector name    : 041 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.40 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type  : Average value Efficiencies at : Peak Energy
Abundance limit  : 75.00
    
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4613.31*	97	20.98	380.60	301	155	29.9		RA-226	1.18
0	5283.96*	84439.39	607.90	607.90	518	175	32.1		RN-222	1.03
0	5801.95*	79241.45	787.62	787.62	712	162	33.2		PO-218	0.965

Eberline Services
Oak Ridge Laboratory

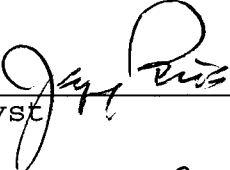
ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:46:03

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$11_RA.CNF

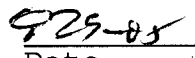
*
BATCH ID: 0508094A-RA * SAMPLE ID: 11
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 9.950E-01 gram
SAMPLE TITLE: VPSCR081705SL08 * DETECTOR NUMBER: 042
ACQ DATE: 27-AUG-2005 08:52 * AVERAGE EFFICIENCY: 21.73%
ELAPSED LIVE TIME: 10200. * RECOVERY: 98.29%
TRACER ID: NONE * TRACER FWHM (kev): 0.00
LAMBDA VALUE: 0. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 0.000 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_042_26AUG05 * BKG ELAPSED TIME: 60000.
* SAF: 1.91

NUCLIDE ACTIVITY SUMMARY

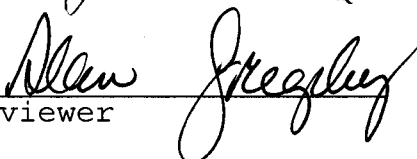
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	127.46	0.51	100.0	1.589E+00	4.053E-01	1.436E-01
RN-222	5490.0	100.04	1.19	99.9	1.248E+00	3.578E-01	1.855E-01
RA-226	4785.0	70.67	0.00	100.0	8.810E-01	2.961E-01	6.453E-02



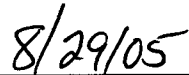
Analyst



Date

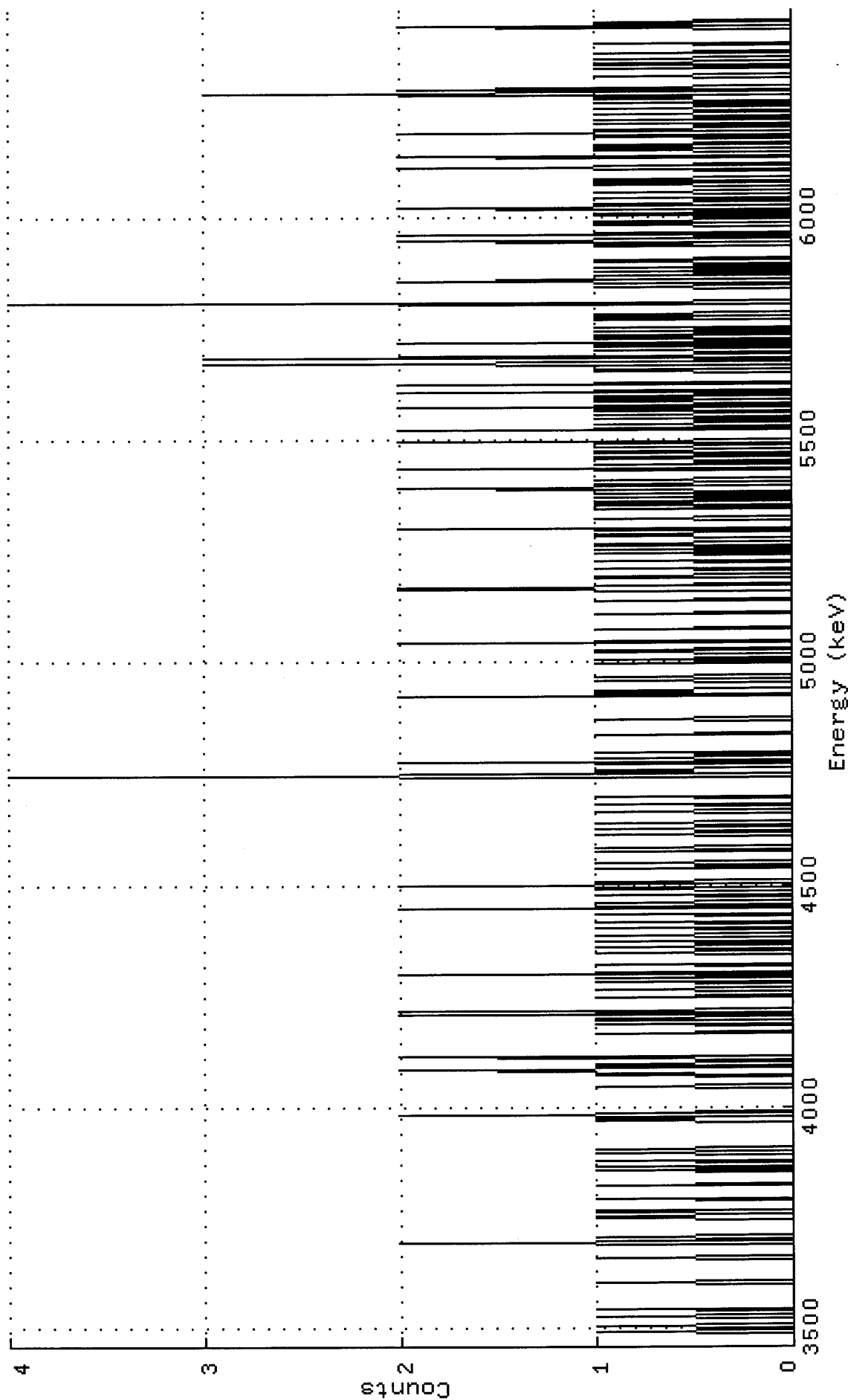


Reviewer



Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-RA\$11-RA.CNF;1
 Title : 042
 Sample Title: VPSCR081705SL08
 Start Time: 27-AUG-2005 08:52 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44878E+03
 Real Time : 0 02:50:00.50 Sample ID : 11 Energy Slope : 3.12999E+00
 Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.86374E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$11_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
15:	0	0	0	1	0	0	0	0	0	0	1	0	0	0
29:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
71:	0	0	0	0	0	0	0	0	2	0	0	0	1	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
99:	0	0	1	1	0	0	0	0	0	0	0	1	0	0
113:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
127:	0	0	0	0	1	0	0	1	0	0	0	1	0	0
141:	0	0	0	1	0	0	1	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
169:	1	0	0	2	0	1	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
197:	0	0	0	0	1	0	1	1	1	2	0	0	1	1
211:	0	0	0	1	2	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
239:	1	0	0	0	1	1	0	0	2	0	2	1	0	0
253:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
267:	0	0	0	1	0	0	0	1	0	0	2	0	0	0
281:	0	0	1	0	0	0	0	0	0	0	0	1	0	0
295:	0	1	0	0	0	1	0	0	0	0	1	0	0	0
309:	0	1	0	0	0	1	0	0	0	0	0	1	0	0
323:	0	0	2	0	0	0	1	0	0	0	0	1	0	0
337:	0	0	1	0	0	2	0	1	1	0	0	0	0	0
351:	0	0	0	0	1	0	0	0	1	0	0	0	0	0
365:	0	0	0	1	0	1	1	0	0	0	0	0	0	0
379:	0	1	1	0	0	0	1	0	0	0	1	0	0	0
393:	0	0	0	0	0	1	0	0	0	0	1	0	0	0
407:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
421:	0	0	0	0	4	0	0	1	1	1	0	0	0	0
435:	2	0	0	1	0	0	0	1	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
463:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	2	0	1	1	1	0
491:	0	0	0	0	0	1	0	0	1	0	0	0	0	1
505:	0	0	0	0	0	1	0	0	1	0	0	0	0	0
519:	0	1	0	0	0	0	0	2	0	0	0	0	0	0
533:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
547:	0	1	0	0	0	0	0	0	0	0	0	1	0	0
561:	0	0	0	0	0	2	1	2	0	1	0	0	0	0
575:	0	1	1	0	0	0	0	1	0	0	0	0	0	1
589:	0	0	0	0	0	1	0	0	1	0	0	1	0	1
603:	0	0	0	0	0	1	1	1	0	0	2	0	0	0
617:	0	0	0	0	1	0	0	0	0	0	0	0	1	0
631:	1	0	1	0	1	0	1	0	0	1	0	0	1	1
645:	2	0	1	1	0	0	1	0	0	0	0	0	0	0
659:	2	0	0	0	1	0	0	0	1	0	1	0	1	0
673:	1	0	0	1	0	0	0	2	1	0	0	0	0	0
687:	0	0	0	2	0	0	0	1	0	0	0	1	0	0
701:	1	1	0	0	1	1	0	2	0	0	0	1	1	0
715:	1	0	1	0	0	2	0	0	0	0	0	2	0	0
729:	0	0	0	0	0	0	0	1	0	0	1	1	0	3
743:	0	1	0	0	3	1	0	0	0	1	1	0	0	1
757:	0	2	0	0	1	0	1	1	0	0	1	0	0	1
771:	0	0	0	0	0	0	1	1	0	1	1	0	0	0
785:	0	0	0	0	0	4	1	0	0	1	0	0	0	1
799:	0	0	0	1	1	0	0	0	2	1	0	0	0	0
813:	0	0	1	0	0	1	0	0	0	1	0	1	0	0
827:	0	0	0	0	0	0	0	0	1	1	0	1	2	0
841:	1	0	0	2	0	0	0	0	0	0	1	1	0	1
855:	0	0	0	1	0	0	1	0	0	1	2	0	0	1
869:	0	0	0	1	0	0	0	0	1	0	0	0	0	0
883:	1	1	0	0	1	1	0	0	0	0	0	0	1	0
897:	2	0	1	0	0	0	0	0	1	2	0	0	0	0
911:	1	1	0	1	0	1	0	0	0	0	1	0	0	2
925:	1	1	0	1	0	0	0	1	0	0	0	1	0	0
939:	0	1	0	0	0	0	1	0	0	0	1	0	0	1
953:	1	1	0	1	3	0	0	0	2	1	0	0	0	0
967:	0	0	0	0	1	0	0	0	0	0	0	1	0	0
981:	1	1	0	0	1	0	0	0	0	1	0	0	0	0
995:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
1009:	0	1	2	0	1	0	1	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:45:49.57

Detector ID: 42	Acquisition Start: 27-AUG-2005 08:52:25.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.50
Batch Id: 0508094A-RA	Sample Id: 11
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4609.24	37	0	3.13	379.32	301	156	3.63E-03	16.4	
2	0	5304.21	53	0516.45		615.34	518	176	5.20E-03	13.7	
3	0	5798.55	67	0153.35		787.67	712	163	6.57E-03	12.2	

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:46:01.51

	Acquisition Start: 26-AUG-2005 12:01:59.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.78	0	0	0.00	378.50	301	156	0.00E+00	0.0	
2	0	5275.65	7	0313.00		605.50	518	176	1.17E-04	37.8	
3	0	5813.65	3	0143.98		793.00	712	163	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:46:01.77

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4609.24*	71	0	3.13	379.32	301	156	6.93E-03	16.4	
2	0	5304.21*	100	0516.45		615.34	518	176	9.81E-03	13.9	
3	0	5798.55*	127	0153.35		787.67	712	163	1.25E-02	12.3	

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL08
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:52:25
 Sample ID : 11 Sample quantity : 0.99500 gram
 Sample type : RA Sample geometry :
 Detector name : 042 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.50 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4609.24*	71	3.13	379.32	301	156	32.9		RA-226	0.866
0	5304.21*	100516.45	615.34	518	176	27.8			RN-222	1.23
0	5798.55*	127153.35	787.67	712	163	24.5			PO-218	1.56

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:46:19

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$12_RA.CNF

*
BATCH ID: 0508094A-RA * SAMPLE ID: 12
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.036E+00 gram
SAMPLE TITLE: VPSCR081705SL09 * DETECTOR NUMBER: 043
ACQ DATE: 27-AUG-2005 08:52 * AVERAGE EFFICIENCY: 21.73%
ELAPSED LIVE TIME: 10200. * RECOVERY: 98.18%
TRACER ID: NONE * TRACER FWHM (kev): 0.00
LAMBDA VALUE: 0. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 0.000 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_043_26AUG05 * BKG ELAPSED TIME: 60000.
* SAF: 2.08

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	95.51	0.17	100.0	1.145E+00	3.474E-01	1.153E-01
RN-222	5490.0	88.76	0.68	99.9	1.064E+00	3.355E-01	1.632E-01
RA-226	4785.0	103.83	0.17	100.0	1.244E+00	3.629E-01	1.153E-01

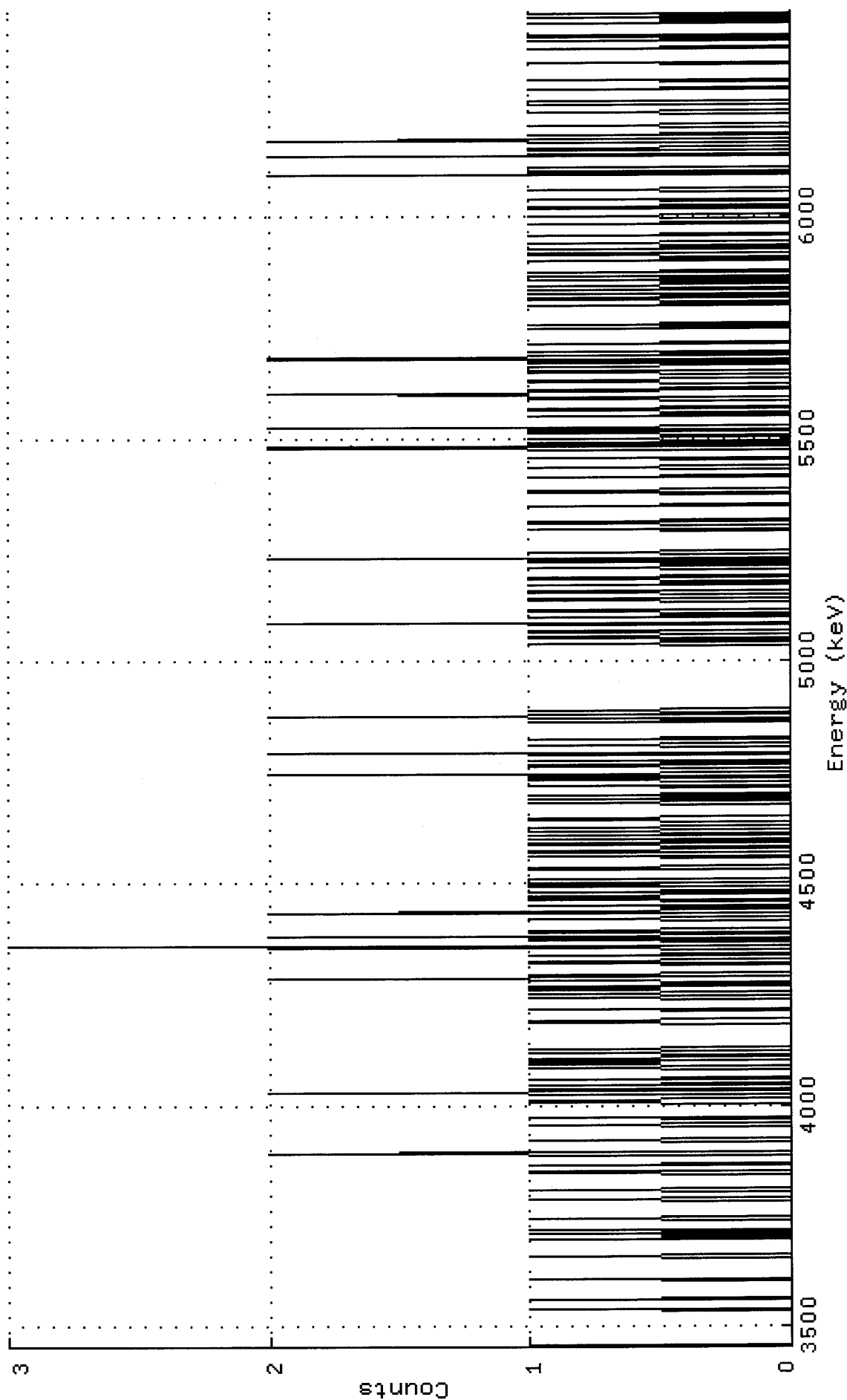
Analyst *J. P. [Signature]*

8-29-05
Date

Reviewer *Alan Gregory*

8/29/05
Date

Spectrum : DKA100: [ALPHA.ALUSR.ARCHIVE.S]S_0508094A-RA\$12_RA.CNF;1
 Title : 043
 Sample Title: VPSCR081705SL09
 Start Time: 27-AUG-2005 08:52 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44344E+03
 Real Time : 0 02:50:00.40 Sample ID : 12 Energy Slope : 3.13349E+00
 Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.89158E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$12_RA

Channel														
1:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
71:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
85:	1	0	0	1	0	0	0	0	0	0	0	0	1	0
99:	0	0	0	0	0	0	0	0	0	0	0	1	1	0
113:	0	0	0	0	1	1	0	0	0	0	0	0	0	0
127:	0	0	0	1	1	0	0	0	0	1	0	0	0	0
141:	0	0	0	2	1	0	0	0	0	0	0	0	0	1
155:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
169:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
183:	1	0	0	0	0	0	2	0	1	0	0	0	1	0
197:	0	0	1	0	0	0	0	0	0	0	1	0	0	1
211:	1	0	1	1	0	0	0	1	0	0	1	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	0	1	1	0	0	0	0	0	0	0	1	0	0
253:	0	0	0	0	0	0	1	0	0	1	0	0	1	1
267:	0	1	0	0	0	1	1	2	0	1	0	0	0	0
281:	0	0	0	1	0	1	0	0	0	0	1	0	0	0
295:	0	1	3	0	0	0	1	0	0	2	1	0	0	1
309:	1	0	0	0	0	0	0	0	1	1	0	0	0	2
323:	1	0	0	0	1	0	0	0	1	0	1	1	0	0
337:	0	1	0	0	0	1	1	0	1	1	1	0	0	0
351:	0	0	0	0	1	1	0	0	0	0	0	0	0	1
365:	0	0	0	1	1	0	0	0	1	0	1	0	1	0
379:	0	0	1	0	1	0	0	1	0	0	0	0	0	1
393:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
407:	0	1	0	0	1	0	0	0	0	0	1	0	0	0
421:	0	1	1	0	0	2	1	0	0	0	0	1	1	0
435:	0	1	0	0	0	0	0	2	0	0	0	0	0	1
449:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
463:	0	0	0	1	0	0	0	2	0	1	0	1	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	0	0	1	0	0	0	1	0	1	0
533:	0	1	1	0	0	0	0	0	2	0	0	0	0	1
547:	0	0	0	1	1	0	0	0	0	0	0	1	1	0
561:	0	0	0	0	1	1	0	0	0	0	1	0	0	0
575:	1	0	1	0	0	0	0	0	0	1	0	0	0	1
589:	0	0	2	0	0	0	0	1	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
617:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
631:	0	1	0	0	0	0	0	0	0	0	1	0	1	0
645:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
659:	0	0	1	0	0	0	0	0	0	1	0	0	0	0
673:	0	0	0	2	0	2	0	1	0	0	1	1	0	0
687:	0	1	0	1	0	2	1	0	0	0	0	0	0	0
701:	0	1	0	0	0	1	0	1	0	0	0	0	0	0
715:	1	0	1	1	2	1	1	0	1	0	0	0	0	1
729:	1	1	0	0	0	0	0	1	0	1	1	1	1	0
743:	1	0	0	2	0	2	0	0	0	1	0	0	0	0
757:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
771:	1	0	0	1	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	1	0	0	0	1	1	0	0	1	0
799:	0	0	1	0	0	1	0	0	0	1	0	0	1	0
813:	0	0	1	0	0	0	0	0	0	0	0	1	0	0
827:	0	1	1	0	0	0	1	0	0	0	1	0	0	0
841:	0	0	0	1	0	0	0	0	0	0	0	0	1	0
855:	0	0	0	1	1	0	0	0	0	0	1	0	1	0
869:	0	0	0	1	0	0	0	0	0	0	0	1	0	0
883:	0	0	0	0	0	0	0	0	0	0	2	0	0	1
897:	1	1	0	0	0	0	0	0	0	0	0	2	0	0
911:	0	0	1	1	0	0	0	0	0	2	1	0	0	0
925:	1	0	0	0	0	0	0	1	1	0	0	0	0	0
939:	0	0	0	0	1	0	0	0	0	0	0	1	0	1
953:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
967:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
995:	1	0	0	0	0	0	1	0	1	0	1	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	1	0	0	1
1023:	0	0	0	0	0	0	1	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:46:07.00

Detector ID: 43	Acquisition Start: 27-AUG-2005 08:52:44.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.40
Batch Id: 0508094A-RA	Sample Id: 12
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4581.48	50	0435.49	371.52	303	155	4.90E-03	14.1		
2	0	5286.91	43	0477.86	610.84	519	176	4.22E-03	15.2		
3	0	5767.60	46	0 95.57	778.28	714	163	4.51E-03	14.7		

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:46:17.80

	Acquisition Start: 26-AUG-2005 12:02:03.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.85	1	0 3.13	380.00	303	155	1.67E-05	100.0		
2	0	5274.32	4	0213.08	606.50	519	176	6.67E-05	50.0		
3	0	5815.01	1	0 3.13	795.00	714	163	1.67E-05	100.0		

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:46:18.05

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4581.48*	104	0435.49	371.52	303	155	1.02E-02	14.2		
2	0	5286.91*	89	0477.86	610.84	519	176	8.70E-03	15.4		
3	0	5767.60*	96	0 95.57	778.28	714	163	9.36E-03	14.8		

Flag: "*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.0 Generated 29-AUG-2005 06:46:18

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL09
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:52:44
 Sample ID : 12 Sample quantity : 1.0365 gram
 Sample type : RA Sample geometry :
 Detector name : 043 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.40 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4581.48*	104435.49	371.52	303	155	28.3			RA-226	1.22
0	5286.91*	89477.86	610.84	519	176	30.7			RN-222	1.05
0	5767.60*	96	95.57	778.28	714	163	29.5		PO-218	1.12

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:46:43

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$13_RA.CNF

*
BATCH ID: 0508094A-RA * SAMPLE ID: 13
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.007E+00 gram
SAMPLE TITLE: VPSCR081705SL10 * DETECTOR NUMBER: 044
ACQ DATE: 27-AUG-2005 08:53 * AVERAGE EFFICIENCY: 20.99%
ELAPSED LIVE TIME: 10200. * RECOVERY: 73.97%
TRACER ID: NONE * TRACER FWHM (kev): 0.00
LAMBDA VALUE: 0. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 0.000 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:28 * EFF CAL DATE: 25-AUG-2005 04:28
BKG FILENAME: B_044_26AUG05 * BKG ELAPSED TIME: 60000.
* SAF: 1.81

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	80.43	1.02	100.0	1.363E+00	4.227E-01	2.272E-01
RN-222	5490.0	101.81	1.36	99.9	1.727E+00	4.791E-01	2.497E-01
RA-226	4785.0	69.91	0.68	100.0	1.185E+00	3.921E-01	2.008E-01

Analyst J. H. Price

8-29-05
Date

Reviewer Alan Gregory

8/29/05
Date

Spectrum : DKA100:[ALPHA,ALUSR,ARCHIVE,S]S_0508094A-RA\$13_RA.CNF;1

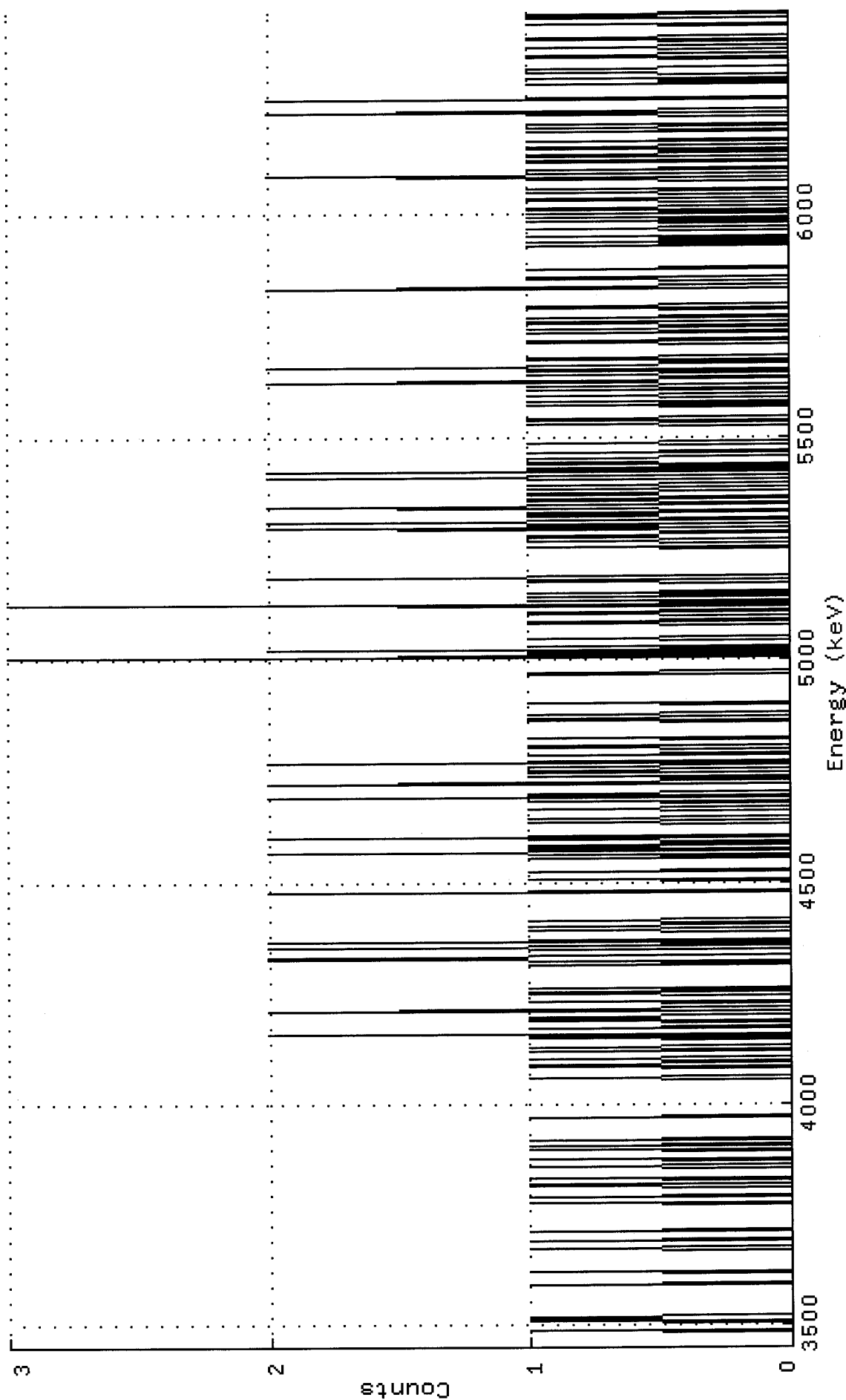
Title : 044

Sample Title: VPSCR081705SL10

Start Time: 27-AUG-2005 08:53 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44108E+03

Real Time : 0 02:50:00.40 Sample ID : 13 Energy Slope : 3.11251E+00

Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.71265E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$13_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	1	0	0	0	0	0	0	0	1	0	1	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
57:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	1	0	0	0	0	0	1	0	0	0
85:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
113:	1	0	0	0	0	0	0	0	1	1	0	0	0	1
127:	0	0	0	0	0	0	0	0	1	0	0	0	0	1
141:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
155:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	1	0	0	0	0	0	0	0	1	0
211:	1	0	0	0	1	0	0	0	0	0	1	0	1	1
225:	0	0	0	0	0	1	0	0	2	0	0	0	0	1
239:	0	0	0	0	1	0	1	1	0	0	0	0	2	1
253:	0	0	0	0	1	0	0	0	0	0	1	1	0	0
267:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	1	0	0	0	2	2	0	0	0	0
295:	0	0	2	0	1	0	0	2	0	0	0	0	0	0
309:	0	1	0	0	1	0	0	0	1	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	2	0	0	0	0	0	0	0	0	1	0	0
351:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
365:	1	0	0	0	2	0	1	0	1	0	1	0	0	0
379:	1	0	2	0	0	0	0	0	0	0	0	0	0	1
393:	0	1	1	0	0	0	0	0	0	1	0	0	0	0
407:	1	0	0	0	2	0	1	1	0	0	0	0	0	0
421:	2	1	0	0	0	1	0	0	0	1	1	0	1	1
435:	0	0	2	0	0	0	0	0	1	0	0	0	0	1
449:	1	0	0	0	0	0	1	0	0	0	0	0	0	0
463:	0	0	0	0	0	1	0	1	0	0	1	0	0	0
477:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
505:	1	0	0	0	0	0	0	0	0	0	0	0	3	0
519:	1	0	0	2	0	0	1	0	0	0	0	0	1	0
533:	0	0	0	0	0	0	0	0	0	0	1	0	1	0
547:	0	0	0	1	0	1	0	0	0	0	3	0	0	1
561:	0	0	0	1	0	0	1	0	0	0	0	0	0	0
575:	1	0	0	2	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
603:	0	0	0	1	0	0	1	1	1	0	0	0	1	2
617:	0	1	0	0	2	0	0	0	1	1	1	0	1	0
631:	1	1	2	0	0	0	1	1	0	0	1	1	1	0
645:	0	1	0	0	1	0	0	0	0	0	2	0	0	0
659:	0	2	0	1	0	0	1	0	1	1	1	1	0	0
673:	0	0	1	0	0	0	0	0	0	1	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	1	1	0	1	0
701:	1	0	0	0	0	0	0	0	0	0	1	0	0	1
715:	0	0	0	0	1	0	0	0	0	1	0	1	1	0
729:	1	2	1	0	0	0	1	1	0	0	1	0	2	1
743:	1	0	0	0	1	0	1	0	0	0	0	0	0	0
757:	0	0	0	0	1	0	1	0	0	0	0	0	1	0
771:	1	1	0	0	0	1	1	0	0	0	1	0	0	0
785:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	2	1	0	0	0	0	0	1	1
813:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	1	0	0	1
841:	0	0	0	1	0	0	0	0	0	1	1	0	0	0
855:	0	1	0	0	1	0	0	0	1	0	0	1	1	0
869:	0	0	0	0	1	1	0	0	0	0	1	1	0	1
883:	0	0	0	0	0	0	0	1	0	1	2	0	0	0
897:	0	1	0	0	0	0	0	1	1	0	0	0	1	1
911:	0	0	0	1	0	1	0	0	0	1	0	0	0	0
925:	0	0	0	0	1	0	1	1	0	1	0	0	0	0
939:	0	0	0	1	0	2	1	0	0	0	0	0	0	0
953:	0	0	2	0	0	0	0	0	0	0	0	0	0	0
967:	1	0	0	0	1	0	0	0	0	1	1	1	1	0
981:	0	0	0	0	0	0	0	1	0	1	0	0	0	0
995:	0	1	0	0	0	0	0	1	0	1	0	0	0	0
1009:	0	0	0	0	0	1	0	0	0	0	0	1	1	0
1023:	0	0	0	0	0	0	0	0	0	0	0	1	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:46:23.17

Detector ID: 44	Acquisition Start: 27-AUG-2005 08:53:02.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.40
Batch Id: 0508094A-RA	Sample Id: 13
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4644.19	39	0308.14	395.13	305	156	3.82E-03	16.0		
2	0	5289.74	57	0 0.00	614.74	522	176	5.59E-03	13.2		
3	0	5781.84	45	0236.55	786.04	717	162	4.41E-03	14.9		

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:46:41.80

	Acquisition Start: 26-AUG-2005 12:02:06.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.56	4	0270.79	382.50	305	156	6.67E-05	50.0		
2	0	5274.54	8	0392.18	609.50	522	176	1.33E-04	35.4		
3	0	5814.39	6	0 3.11	797.50	717	162	1.00E-04	40.8		

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:46:42.05

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4644.19*	70	0308.14	395.13	305	156	6.85E-03	16.2		
2	0	5289.74*	102	0 0.00	614.74	522	176	9.98E-03	13.4		
3	0	5781.84*	80	0236.55	786.04	717	162	7.89E-03	15.1		

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[AMSCOUNT]00009067\$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL10
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:53:02
Sample ID : 13 Sample quantity : 1.0068 gram
Sample type : RA Sample geometry :
Detector name : 044 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.40 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4644.19*	70308.14	395.13	305	156	32.4			RA-226	0.876
0	5289.74*	102	0.00	614.74	522	176	26.9		RN-222	1.28
0	5781.84*	80236.55	786.04	717	162	30.2			PO-218	1.01

Eberline Services
Oak Ridge Laboratory

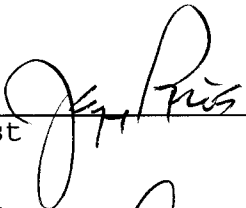
ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:47:00

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$14_RA.CNF

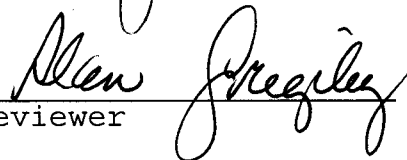
BATCH ID:	0508094A-RA	*	SAMPLE ID:	14
SAMPLE DATE:	17-AUG-2005 00:00	*	ALIUQUOT:	1.074E+00 gram
SAMPLE TITLE:	VPSCR081705SL11	*	DETECTOR NUMBER:	045
ACQ DATE:	27-AUG-2005 08:53	*	AVERAGE EFFICIENCY:	20.55%
ELAPSED LIVE TIME:	10200.	*	RECOVERY:	90.24%
TRACER ID:	NONE	*	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	*	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	*	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	*	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	*	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_045_26AUG05	*	BKG ELAPSED TIME:	60000.
		*	SAF:	2.00
		*		

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	49.66	0.34	100.0	6.606E-01	2.701E-01	1.442E-01
RN-222	5490.0	47.83	0.17	99.9	6.367E-01	2.646E-01	1.232E-01
RA-226	4785.0	83.32	0.68	100.0	1.108E+00	3.534E-01	1.741E-01

Analyst 

8/29-05
Date

Reviewer 

8/29/05
Date

Spectrum : DKA100: [ALPHA.ALUSR.ARCHIVE.S]S_0508094A-RA\$14_RA.CNF;1

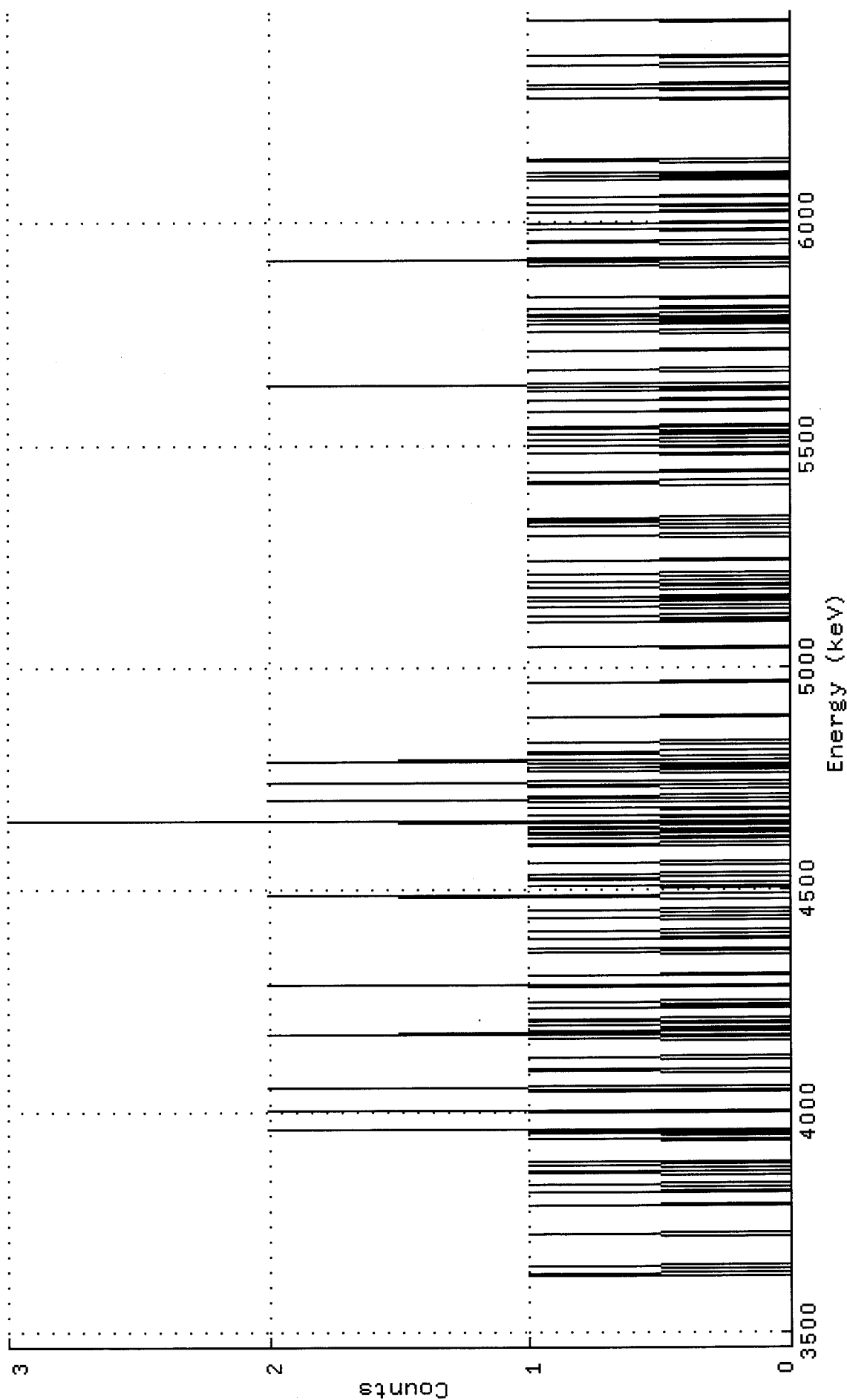
Title : 045

Sample Title: VPSCR081705SL11

Start Time: 27-AUG-2005 08:53 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45577E+03

Real Time : 0 02:50:00.00 Sample ID : 14 Energy Slope : 3.12631E+00

Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.82971E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$14_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
57:	1	0	0	0	0	1	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
113:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
127:	0	0	0	1	1	0	0	0	0	1	0	1	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	1	0	0	0	1	0	0	2	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	2	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	1	0	2	0	0	0
197:	0	0	0	0	0	0	0	0	0	1	1	0	0	0
211:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	1	0	0	2	1	0	1	0	0
239:	0	1	0	1	0	1	0	0	0	0	0	0	0	0
253:	1	0	0	0	1	0	0	0	0	0	0	0	0	0
267:	0	0	2	0	0	0	0	0	0	0	1	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
295:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
309:	1	0	0	0	0	0	0	0	0	0	1	0	0	0
323:	0	0	1	0	0	0	0	0	0	0	0	0	1	2
337:	1	0	0	0	0	0	1	0	0	0	0	1	1	0
351:	0	1	0	0	0	0	0	0	0	1	1	0	0	0
365:	0	0	0	0	0	0	0	0	0	1	1	0	0	0
379:	0	1	0	1	0	1	0	1	0	1	0	0	0	3
393:	0	0	0	1	0	0	0	0	0	1	0	0	0	0
407:	0	2	0	1	1	0	0	0	0	0	0	1	0	0
421:	2	0	0	0	0	0	0	0	0	1	0	0	1	0
435:	0	0	2	1	0	0	0	0	1	1	0	0	0	0
449:	0	0	1	1	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
547:	0	1	0	0	0	0	0	0	1	0	0	0	0	1
561:	0	0	1	0	0	0	0	0	0	1	0	0	0	0
575:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
589:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	1	1	0	0	0	0	0	0
617:	1	0	0	1	0	1	0	0	0	0	0	0	0	0
631:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	1	1	1	0	0	0	0	0	0	0
659:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	1	0	0	0	0	0	1	0	0	0	0	1	0	0
687:	0	0	1	0	0	0	1	0	1	0	0	0	0	0
701:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
715:	0	1	0	0	0	0	0	0	1	0	0	0	2	0
729:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
771:	0	0	0	0	1	0	0	1	0	0	1	0	1	0
785:	0	0	0	1	0	0	0	0	0	0	0	1	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	1	0	0	1	0	2
827:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
841:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
855:	1	0	0	0	0	0	0	0	0	1	0	0	0	0
869:	1	0	0	0	0	0	0	1	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	1	0	0	1	0	1	0
897:	0	0	0	0	0	0	0	0	1	1	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
967:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	1	0	0	0	0	0	0	1	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:46:46.98

Detector ID: 45	Acquisition Start: 27-AUG-2005 08:53:19.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.00
Batch Id: 0508094A-RA	Sample Id: 14
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4635.76	42	0318.88	386.17	299	156	4.12E-03	15.4		
2	0	5295.22	24	0518.97	610.17	516	176	2.35E-03	20.4		
3	0	5814.88	25	0312.63	791.24	710	163	2.45E-03	20.0		

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:46:59.02

	Acquisition Start: 26-AUG-2005 12:02:09.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.89	4	0231.35	376.50	299	156	6.67E-05	50.0		
2	0	5275.86	1	0 3.13	603.50	516	176	1.67E-05	100.0		
3	0	5814.20	2	0 93.79	791.00	710	163	3.33E-05	70.7		

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:46:59.30

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4635.76*	83	0318.88	386.17	299	156	8.17E-03	15.6		
2	0	5295.22*	48	0518.97	610.17	516	176	4.69E-03	20.5		
3	0	5814.88*	50	0312.63	791.24	710	163	4.87E-03	20.1		

Flag: "*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.0 Generated 29-AUG-2005 06:47:00

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL11
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:53:19
 Sample ID : 14 Sample quantity : 1.0743 gram
 Sample type : RA Sample geometry :
 Detector name : 045 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.00 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4635.76*	83318.88	386.17	299	156	31.1			RA-226	1.00
0	5295.22*	48518.97	610.17	516	176	41.0			RN-222	0.575
0	5814.88*	50312.63	791.24	710	163	40.3			PO-218	0.596

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:47:15

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$15_RA.CNF

*
BATCH ID: 0508094A-RA * SAMPLE ID: 15
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.086E+00 gram
SAMPLE TITLE: VPSCR081705SL12 * DETECTOR NUMBER: 046
ACQ DATE: 27-AUG-2005 08:53 * AVERAGE EFFICIENCY: 20.82%
ELAPSED LIVE TIME: 10200. * RECOVERY: 88.02%
TRACER ID: NONE * TRACER FWHM (kev): 0.00
LAMBDA VALUE: 0. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 0.000 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:29 * EFF CAL DATE: 25-AUG-2005 04:29
BKG FILENAME: B_046_26AUG05 * BKG ELAPSED TIME: 60000.
* SAF: 1.81

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	75.17	0.85	100.0	1.001E+00	3.202E-01	1.687E-01
RN-222	5490.0	59.22	0.51	99.9	7.891E-01	2.826E-01	1.455E-01
RA-226	4785.0	71.89	0.51	100.0	9.572E-01	3.121E-01	1.453E-01

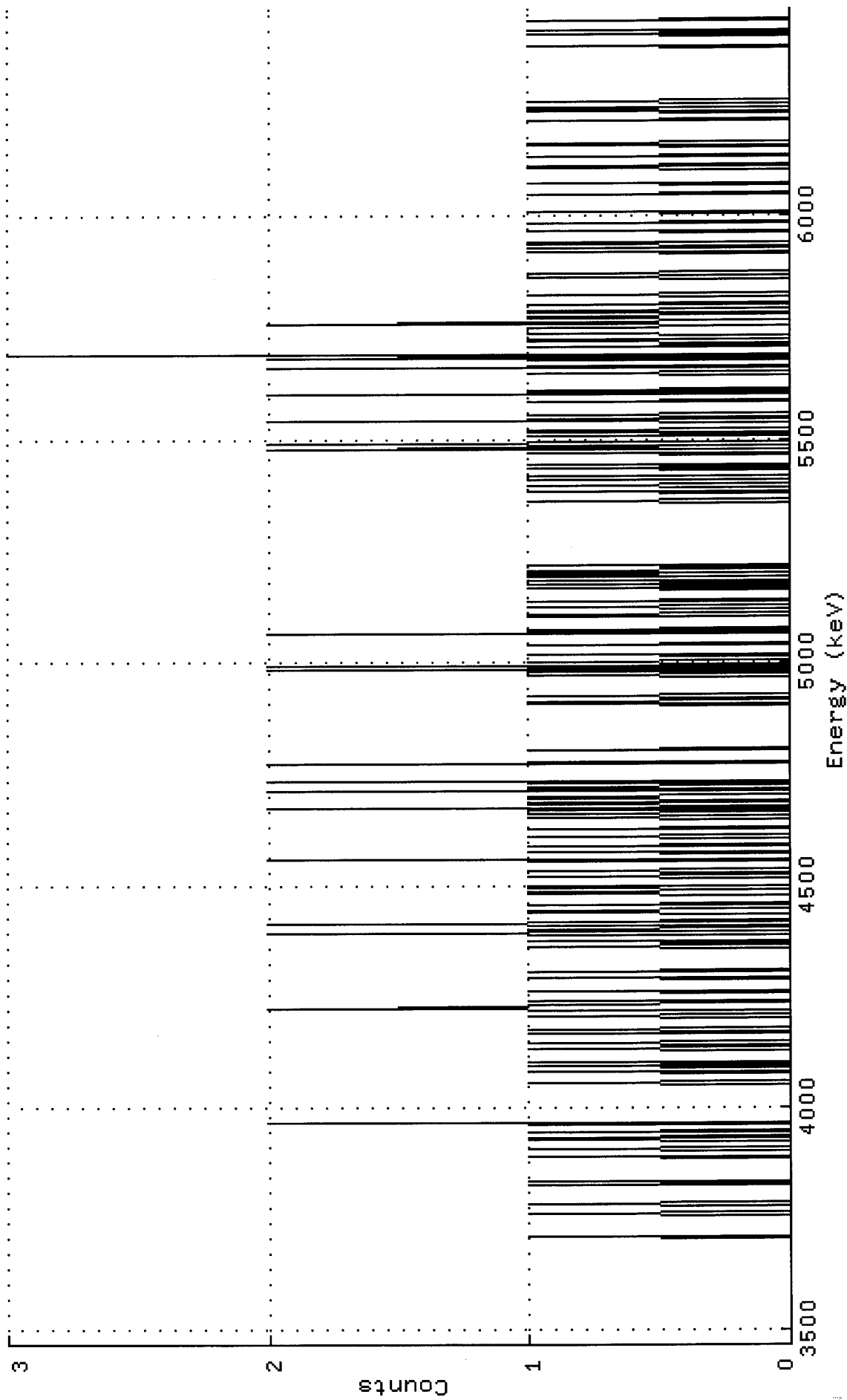
Analyst

B-29-0x
Date

Reviewer

8/29/05
Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508094A-RA\$15_RA.CNF;1
 Title : 046
 Sample Title: VPSCR081705SL12
 Start Time: 27-AUG-2005 08:53 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45486E+03
 Real Time : 0 02:50:00.10 Sample ID : 15 Energy Slope : 3.13726E+00
 Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.96714E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$15_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
99:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	1	0	1	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
141:	0	0	0	0	1	0	0	0	0	0	0	1	0	1
155:	0	0	0	1	0	0	0	0	0	2	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
197:	0	0	0	0	0	1	0	0	0	1	0	0	1	0
211:	0	0	0	0	0	0	0	0	1	0	0	0	1	1
225:	0	0	0	0	0	0	1	0	1	0	0	0	0	0
239:	0	0	0	0	1	0	0	0	0	0	2	1	1	1
253:	0	1	0	0	0	0	0	0	1	0	0	0	0	0
267:	0	0	0	0	1	0	0	0	0	1	0	0	0	1
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	1	0	0	0	0	0	2	0	0	1	0
309:	0	0	2	0	1	0	0	0	0	0	1	1	1	0
323:	0	0	0	1	0	0	0	0	0	0	0	1	1	1
337:	0	1	1	0	0	0	0	0	0	0	1	0	0	0
351:	1	0	0	0	0	0	0	0	2	0	0	0	0	0
365:	1	0	0	0	0	1	0	0	0	0	0	0	1	0
379:	0	0	0	0	1	0	0	0	0	0	0	0	1	0
393:	0	1	0	0	0	2	0	0	1	0	1	0	1	1
407:	1	0	0	0	0	2	0	1	0	0	0	2	0	0
421:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
435:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
477:	0	1	0	0	0	1	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	1	0	0	0	2	0	0
505:	2	0	0	1	1	0	0	0	0	1	0	0	0	0
519:	0	0	0	1	0	0	0	0	0	0	0	0	2	0
533:	0	1	0	0	0	0	0	0	0	0	0	1	1	0
547:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
561:	0	0	0	0	1	0	0	1	0	0	1	0	0	0
575:	1	1	0	1	1	0	0	0	1	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
631:	0	1	0	0	0	0	0	0	1	0	0	0	0	1
645:	0	0	0	0	1	1	1	0	0	0	0	0	1	0
659:	0	1	0	0	0	0	0	0	0	0	1	0	0	0
673:	2	1	0	0	2	0	0	0	0	0	1	0	0	1
687:	1	0	0	0	0	0	0	1	2	0	0	0	1	0
701:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
715:	0	2	0	0	1	0	0	0	0	0	0	0	0	0
729:	0	0	0	1	0	0	0	0	2	0	0	0	0	0
743:	0	2	0	0	3	0	0	0	0	0	0	1	0	0
757:	0	1	1	0	0	0	0	1	1	1	1	1	1	0
771:	1	2	1	0	0	1	1	1	0	1	0	1	0	0
785:	0	0	1	0	0	0	0	0	0	1	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	1	0	0	1	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	1	0	0	0	1	0	1	1	1	0	0	0	0	0
841:	0	0	0	1	0	0	0	0	0	0	1	0	0	0
855:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	1	0	0	0	0	0	0	0	1
883:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
897:	1	0	0	0	0	0	0	0	1	0	0	0	0	0
911:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
939:	0	0	1	0	1	1	0	0	0	0	1	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
995:	0	0	0	0	0	0	0	0	1	0	0	1	0	0
1009:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:47:04.36

Detector ID: 46	Acquisition Start: 27-AUG-2005 08:53:36.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.10
Batch Id: 0508094A-RA	Sample Id: 15
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4582.13	40	0404.71	367.80	299	155	3.92E-03	15.8		
2	0	5300.66	33	0461.18	611.82	516	176	3.24E-03	17.4		
3	0	5768.83	42	0178.04	775.26	710	164	4.12E-03	15.4		

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:47:13.57

Live Time: 0 16:40:00.00	Acquisition Start: 26-AUG-2005 12:02:12.01
	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.66	3	0197.65	376.00	299	155	5.00E-05	57.7		
2	0	5276.55	3	0329.41	603.50	516	176	5.00E-05	57.7		
3	0	5814.76	5	0269.80	791.50	710	164	8.33E-05	44.7		

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:47:13.81

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4582.13*	72	0404.71	367.80	299	155	7.05E-03	15.9		
2	0	5300.66*	59	0461.18	611.82	516	176	5.81E-03	17.6		
3	0	5768.83*	75	0178.04	775.26	710	164	7.37E-03	15.6		

Flag: "*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.0 Generated 29-AUG-2005 06:47:14

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL12
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:53:36
 Sample ID : 15 Sample quantity : 1.0861 gram
 Sample type : RA Sample geometry :
 Detector name : 046 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.10 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4582.13*	72404.71	367.80	299	155	31.9			RA-226	0.843
0	5300.66*	59461.18	611.82	516	176	35.1			RN-222	0.695
0	5768.83*	75178.04	775.26	710	164	31.2			PO-218	0.881

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:47:38

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$16_RA.CNF

*
BATCH ID: 0508094A-RA * SAMPLE ID: 16
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.004E+00 gram
SAMPLE TITLE: VPSCR081705SL13 * DETECTOR NUMBER: 047
ACQ DATE: 27-AUG-2005 08:53 * AVERAGE EFFICIENCY: 21.54%
ELAPSED LIVE TIME: 10200. * RECOVERY: 90.43%
TRACER ID: NONE * TRACER FWHM (kev): 0.00
LAMBDA VALUE: 0. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 0.000 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:29 * EFF CAL DATE: 25-AUG-2005 04:29
BKG FILENAME: B_047_26AUG05 * BKG ELAPSED TIME: 60000.
* SAF: 2.20

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	128.95	0.85	100.0	1.748E+00	4.740E-01	2.086E-01
RN-222	5490.0	108.47	1.53	99.9	1.471E+00	4.343E-01	2.524E-01
RA-226	4785.0	87.49	0.51	100.0	1.185E+00	3.860E-01	1.798E-01

Analyst Jay Price

8-29-05
Date

Reviewer Alan Gregory

8/29/05
Date

Spectrum : DKA100: [ALPHA.ALUSR.ARCHIVE.S]S_0508094A-RA\$16_RA.CNF;1

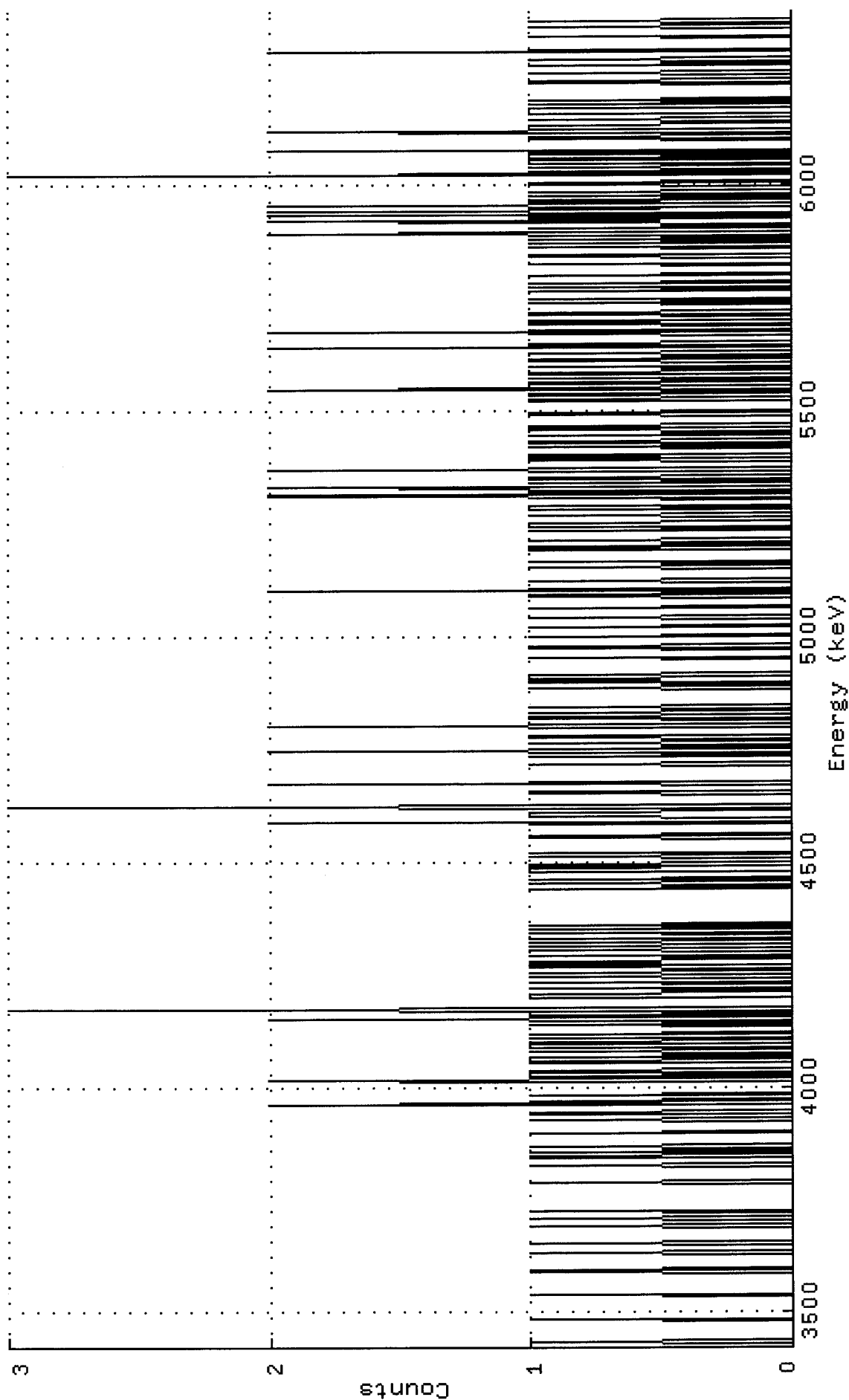
Title : 047

Sample Title: VPSCR081705SL13

Start Time: 27-AUG-2005 08:53 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.41205E+03

Real Time : 0 02:50:00.10 Sample ID : 16 Energy Slope : 3.08217E+00

Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.82953E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$16_RA

Channel

1:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
71:	0	1	0	0	0	0	0	0	1	0	0	0	0	0
85:	0	0	0	0	0	0	1	0	0	0	0	0	1	0
99:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
127:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
141:	0	1	1	0	0	1	0	0	0	1	0	0	0	0
155:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
169:	1	0	0	0	0	1	1	0	0	0	0	0	2	1
183:	0	1	0	0	0	1	0	0	0	0	0	0	0	0
197:	0	1	2	0	0	1	0	1	0	1	0	0	0	0
211:	0	1	1	0	0	1	0	0	0	1	0	0	1	1
225:	1	0	1	0	1	0	0	0	1	0	0	0	0	0
239:	1	0	0	1	0	2	0	0	1	0	1	0	3	0
253:	0	0	0	0	0	0	0	1	1	1	0	0	0	1
267:	0	0	0	1	0	0	0	0	1	0	0	1	0	0
281:	0	1	1	0	1	1	1	0	0	1	0	0	0	0
295:	1	0	1	1	0	1	1	0	1	0	0	0	1	0
309:	0	0	1	0	0	1	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	1	0	0	0	1	0	0	1	0	0
351:	0	0	0	1	1	1	0	1	1	0	0	0	0	0
365:	1	0	1	0	0	0	0	0	0	0	0	0	0	0
379:	1	0	1	0	0	0	0	0	0	0	0	2	0	0
393:	0	0	1	1	1	1	0	1	0	3	0	0	0	0
407:	0	0	0	0	0	1	1	0	0	0	0	0	1	2
421:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
435:	0	0	0	0	0	1	0	0	0	2	0	1	0	0
449:	0	1	0	0	0	1	1	0	0	0	0	0	0	0
463:	2	0	0	0	0	1	0	1	0	0	1	0	0	0
477:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	1	0	0	0	1	0	1	1	0	0	1	0	0
505:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
519:	0	0	0	1	0	1	0	0	0	0	0	0	0	1
533:	0	0	0	0	0	0	1	0	0	0	0	0	0	1
547:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
561:	0	1	0	1	0	0	2	0	0	0	0	0	0	1
575:	0	0	0	0	0	0	0	0	0	1	0	0	0	1
589:	0	0	0	0	0	0	0	0	0	1	1	0	1	0
603:	0	0	1	0	0	0	0	0	0	0	1	0	0	1
617:	1	1	0	0	0	0	0	1	0	0	0	0	1	0
631:	1	0	0	0	0	0	1	0	2	0	2	0	0	1
645:	1	2	0	0	0	1	0	1	0	1	0	0	0	0
659:	0	2	0	0	0	0	0	0	1	1	0	1	0	0
673:	0	0	0	0	1	0	0	1	0	1	0	0	0	0
687:	1	0	0	0	1	1	0	1	0	0	0	0	0	0
701:	0	0	1	0	1	0	0	0	0	0	0	0	1	1
715:	1	0	0	1	0	1	0	0	2	1	0	1	0	0
729:	1	0	1	0	0	0	1	1	0	0	0	1	0	0
743:	0	0	1	0	1	0	0	0	1	0	0	0	0	2
757:	0	1	1	0	0	0	0	0	0	1	0	2	0	0
771:	0	0	1	0	1	1	0	0	0	0	1	0	1	0
785:	0	0	0	0	0	1	0	0	1	0	0	0	0	0
799:	0	1	0	1	0	0	0	1	0	0	0	0	0	1
813:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
827:	1	1	0	0	0	0	0	1	0	0	0	1	0	0
841:	1	0	0	0	2	1	0	0	0	1	0	0	0	1
855:	2	1	0	1	0	2	0	0	2	1	1	0	0	2
869:	0	0	1	0	1	0	0	1	0	1	1	0	0	0
883:	0	0	1	0	1	0	0	0	0	0	3	0	0	1
897:	0	1	1	0	0	1	1	1	0	0	1	0	0	1
911:	0	2	0	0	0	0	0	0	0	0	1	0	1	0
925:	0	0	1	2	0	1	1	1	1	0	0	0	1	0
939:	0	0	0	1	1	1	1	1	0	0	0	1	0	0
953:	1	0	0	0	0	0	0	0	0	0	0	0	0	1
967:	0	1	0	0	0	0	0	1	0	0	0	0	0	0
981:	1	0	0	0	1	0	0	0	0	0	0	2	0	0
995:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
1009:	0	0	1	1	0	0	0	1	0	0	0	0	0	0
1023:	0	0												

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Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:47:18.77

Detector ID: 47	Acquisition Start: 27-AUG-2005 08:53:52.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.10
Batch Id: 0508094A-RA	Sample Id: 16
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4635.31	40	0226.54	406.70	318	158	3.92E-03	15.8		
2	0	5296.37	50	0289.72	635.32	539	179	4.90E-03	14.1		
3	0	5845.21	59	0424.57	830.36	737	166	5.78E-03	13.0		

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:47:36.64

	Acquisition Start: 26-AUG-2005 12:02:15.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4605.37	3	0 92.47	396.50	318	158	5.00E-05	57.7		
2	0	5275.50	9	0376.02	628.00	539	179	1.50E-04	33.3		
3	0	5815.03	5	0385.27	819.50	737	166	8.33E-05	44.7		

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:47:36.90

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4635.31*	87	0226.54	406.70	318	158	8.58E-03	15.9		
2	0	5296.37*	108	0289.72	635.32	539	179	1.06E-02	14.3		
3	0	5845.21*	129	0424.57	830.36	737	166	1.26E-02	13.1		

Flag: "*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.0 Generated 29-AUG-2005 06:47:37

Configuration : MCA0:[AMSCOUNT]00009067\$1
 Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : VPSCR081705SL13
 Sample date : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:53:52
 Sample ID : 16 Sample quantity : 1.0040 gram
 Sample type : RA Sample geometry :
 Detector name : 047 Detector geometry:
 Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.10 0.0%
 Energy tolerance : 100.00 keV Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 3.00 %
 Efficiency type : Average value Efficiencies at : Peak Energy
 Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4635.31*	87226.54	406.70	318	158	31.8			RA-226	1.07
0	5296.37*	108289.72	635.32	539	179	28.7			RN-222	1.33
0	5845.21*	129424.57	830.36	737	166	26.2			PO-218	1.58

Eberline Services
Oak Ridge Laboratory

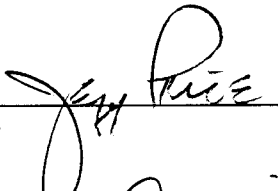
ALPHA SPECTROMETRY REPORT
29-AUG-2005 06:47:56

Spectral File: ND_AMS_ARCHIVE_S:S_0508094A-RA\$17_RA.CNF

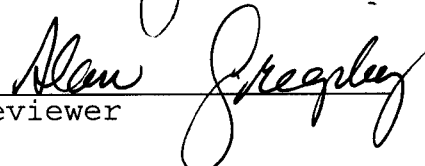
*
BATCH ID: 0508094A-RA * SAMPLE ID: 17
SAMPLE DATE: 17-AUG-2005 00:00 * ALIQUOT: 1.055E+00 gram
SAMPLE TITLE: VPSCR081705SL14 * DETECTOR NUMBER: 048
ACQ DATE: 27-AUG-2005 08:54 * AVERAGE EFFICIENCY: 20.31%
ELAPSED LIVE TIME: 10200. * RECOVERY: 77.96%
TRACER ID: NONE * TRACER FWHM (kev): 0.00
LAMBDA VALUE: 0. * ROI TYPE: STANDARD
TRACER DPM AT SAMPLE DATE: 0.000 * CONFIDENCE FACTOR: 4.65
SAMPLE MATRIX: SOIL * LLD CONSTANT: 2.71
ENERGY CAL DATE: 25-AUG-2005 04:29 * EFF CAL DATE: 25-AUG-2005 04:29
BKG FILENAME: B_048_26AUG05 * BKG ELAPSED TIME: 60000.
* SAF: 2.08

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	115.97	0.51	100.0	1.840E+00	5.102E-01	1.990E-01
RN-222	5490.0	106.46	1.70	99.9	1.690E+00	4.907E-01	2.896E-01
RA-226	4785.0	116.86	1.70	100.0	1.853E+00	5.148E-01	2.894E-01

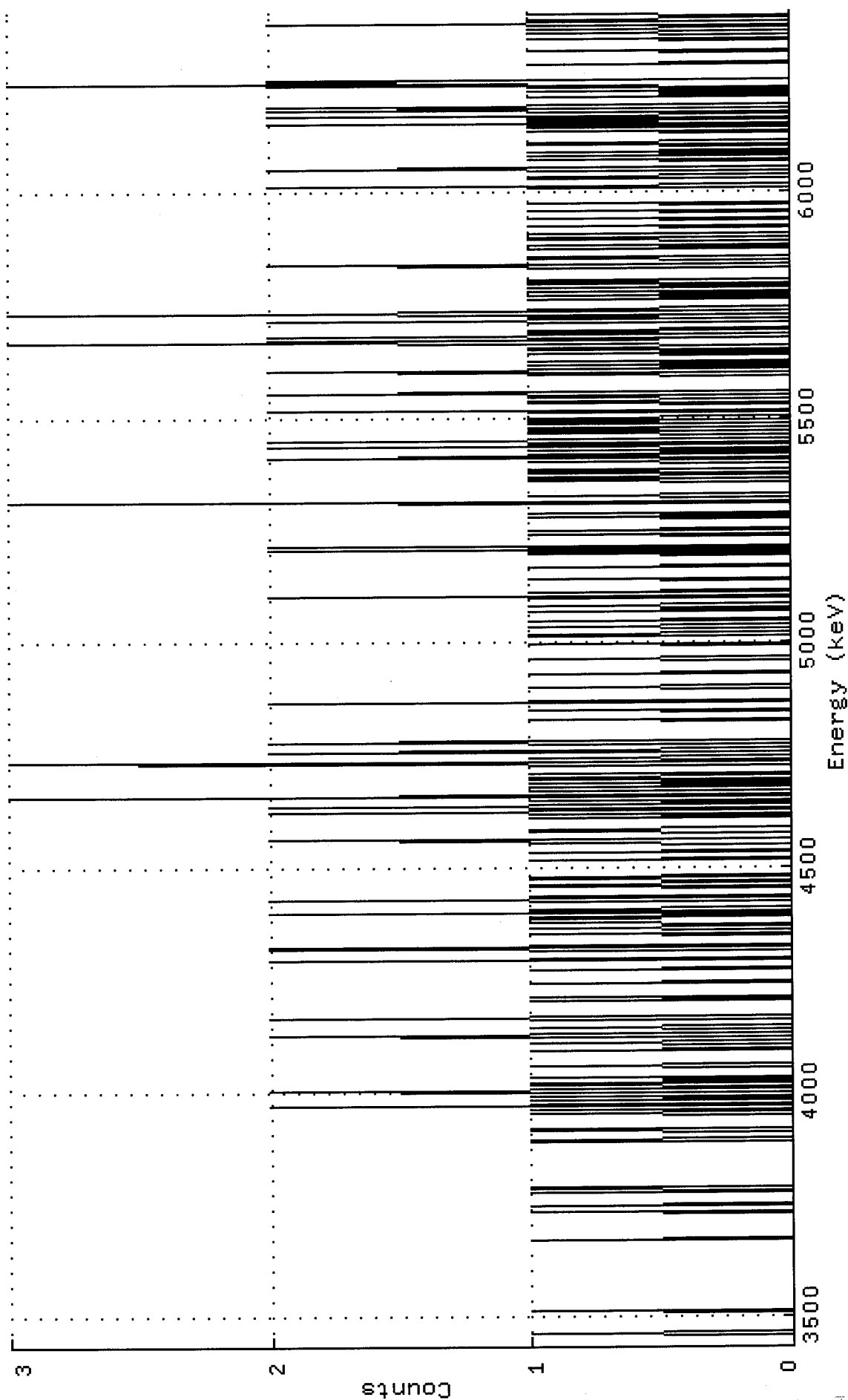
Analyst 

8/29/05
Date

Reviewer 

8/29/05
Date

Spectrum : DKA100: [ALPHA.ALUSR.ARCHIVE.S]S_0508094A-RA\$17_RA.CNF;1
 Title : 048
 Sample Title: VPSCR081705SL14
 Start Time: 27-AUG-2005 08:54 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42171E+03
 Real Time : 0 02:50:00.10 Sample ID : 17 Energy Slope : 3.04247E+00
 Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.36902E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508094A-RA\$17_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	1	0	0	0	0	1	0	0	0	0	0
113:	0	0	0	0	1	0	1	1	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	1	1	0	0	0	0	0	0	1	1	0	0	0	0
169:	0	0	0	0	0	0	0	1	0	1	0	0	0	2
183:	0	0	0	1	0	1	0	0	0	1	2	0	0	0
197:	1	0	1	0	0	1	0	0	0	0	0	0	0	0
211:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
225:	0	0	0	1	0	0	0	0	1	2	0	0	0	0
239:	1	1	0	0	0	0	0	0	2	0	0	0	0	0
253:	0	0	0	0	0	0	0	1	0	1	0	0	0	0
267:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
281:	0	0	1	0	0	0	0	0	0	2	0	0	0	0
295:	0	0	0	2	0	2	0	0	0	0	0	0	0	0
309:	1	0	0	0	0	1	0	0	0	1	1	1	1	0
323:	1	0	0	2	0	1	0	0	0	0	0	0	2	0
337:	0	1	0	0	0	0	0	0	1	0	1	0	0	0
351:	1	0	1	0	0	0	0	0	0	0	0	0	0	0
365:	0	1	0	0	0	0	0	1	0	0	0	0	0	1
379:	1	1	2	0	0	0	0	0	1	1	1	0	0	0
393:	0	0	0	0	0	1	0	0	0	2	0	0	0	2
407:	0	0	0	1	0	0	0	3	0	0	0	1	1	1
421:	0	0	1	0	0	1	0	1	0	1	0	0	0	0
435:	0	0	0	2	3	0	0	1	1	0	0	0	2	1
449:	0	0	0	0	0	2	1	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
477:	0	1	0	0	0	0	0	0	2	0	0	0	0	0
491:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
505:	0	0	1	0	0	0	0	0	0	0	0	0	0	1
519:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
533:	0	0	0	1	1	0	0	0	0	0	1	0	0	0
547:	0	1	0	0	0	0	0	0	1	0	0	0	1	0
561:	0	0	0	0	2	0	0	0	0	1	0	0	0	0
575:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
589:	1	0	0	0	0	0	0	0	0	1	0	0	2	0
603:	0	2	0	0	0	0	0	0	0	0	1	0	0	0
617:	1	0	0	0	0	0	0	0	0	1	0	0	1	0
631:	0	0	0	0	0	0	0	3	0	0	0	0	1	0
645:	0	0	0	0	0	0	0	0	0	0	1	1	0	1
659:	0	1	0	1	1	0	0	0	0	0	1	1	0	0
673:	2	1	0	1	0	0	1	0	1	2	0	1	0	2
687:	0	0	0	0	0	1	1	0	1	1	0	0	0	1
701:	1	0	1	1	0	0	0	0	2	0	0	0	0	0
715:	1	0	1	0	0	1	0	0	2	1	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	1	0	1	2	0
743:	0	0	1	0	0	1	0	0	0	0	0	1	0	0
757:	1	0	1	0	0	1	2	3	1	0	0	2	0	0
771:	1	0	1	0	0	0	0	0	0	2	0	0	1	0
785:	0	3	0	1	1	0	0	0	0	0	0	0	1	0
799:	0	1	0	1	0	0	0	1	0	1	0	1	1	0
813:	0	0	0	0	0	0	0	0	1	1	2	0	0	0
827:	0	1	1	0	0	0	0	0	0	1	0	1	0	0
841:	0	0	1	0	1	1	1	0	0	0	0	0	1	0
855:	0	0	0	0	1	0	0	0	0	0	1	0	0	0
869:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	2	1	0	0	0	0	0	1	1	0	0	0
897:	0	0	2	1	0	0	0	0	0	1	0	0	0	1
911:	0	0	1	0	0	0	0	1	0	1	0	0	0	0
925:	0	0	0	0	1	0	0	0	1	0	2	0	1	0
939:	1	0	2	1	0	0	0	2	0	1	2	0	0	0
953:	0	0	0	1	0	0	0	0	1	0	0	1	0	1
967:	3	1	2	2	0	0	0	0	0	0	0	0	0	0
981:	0	0	1	0	0	0	0	0	0	0	0	0	1	0
995:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
1009:	0	1	0	0	0	0	2	0	0	1	0	0	0	1
1023:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:47:41.93

Detector ID: 48	Acquisition Start: 27-AUG-2005 08:54:10.01
Live Time: 0 02:50:00.00	Real Time: 0 02:50:00.10
Batch Id: 0508094A-RA	Sample Id: 17
Sample Type: RA	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4593.22	57	0391.72	391.96	318	158	5.59E-03	13.2		
2	0	5331.06	52	0436.59	646.37	538	178	5.10E-03	13.9		
3	0	5775.63	56	0441.03	802.68	735	164	5.49E-03	13.4		

Background Counts Within Peak Regions Generated: 29-AUG-2005 06:47:54.72

	Acquisition Start: 26-AUG-2005 12:02:18.01
Live Time: 0 16:40:00.00	Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.53	10	0438.12	396.50	318	158	1.67E-04	31.6		
2	0	5274.08	10	0410.73	626.50	538	178	1.67E-04	31.6		
3	0	5814.62	3	0298.16	816.50	735	164	5.00E-05	57.7		

Net Sample Counts Within Peak Regions Generated: 29-AUG-2005 06:47:54.97

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4593.22*	117	0391.72	391.96	318	158	1.15E-02	13.4		
2	0	5331.06*	106	0436.59	646.37	538	178	1.04E-02	14.1		
3	0	5775.63*	116	0441.03	802.68	735	164	1.14E-02	13.4		

Flag: "*" = Peak area was modified by background subtraction

```

Configuration      : MCA0:[AMSCOUNT]00009067$1
Analyses by       : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title      : VPSCR081705SL14
Sample date       : 17-AUG-2005 00:00:00 Acquisition date : 27-AUG-2005 08:54:10
Sample ID         : 17 Sample quantity : 1.0550 gram
Sample type       : RA Sample geometry :
Detector name     : 048 Detector geometry:
Elapsed live time : 0 02:50:00.00 Elapsed real time: 0 02:50:00.10 0.0%
Energy tolerance  : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type   : Average value Efficiencies at : Peak Energy
Abundance limit   : 75.00
    
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4593.22*	117391.72	391.96	318	158	26.9			RA-226	1.44
0	5331.06*	106436.59	646.37	538	178	28.2			RN-222	1.32
0	5775.63*	116441.03	802.68	735	164	26.8			PO-218	1.43

28
0 29-05

VAX/VMS Peak Search Report Generated 29-AUG-2005 04:54:52.91

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809401_GE1_BAFIL_87540.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : SPIKE
Deposition Date :
Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 04:49:36
Sample ID : 0508094-01 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE1 Detector Geometry: BAFIL
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.07 0.0%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	1	62.25	94	30	1.92	62.08	58	14	3.13E-01	14.9	3.09E+00
2	1	67.00	22	52	1.92	66.83	58	14	7.31E-02	51.9	
3	0	81.78	295	46	2.04	81.61	77	11	9.85E-01	7.4	
4	0	94.73	11	49	1.54	94.56	90	8	3.71E-02	112.2	
5	1	110.17	18	17	1.78	110.00	107	13	6.03E-02	40.7	1.11E+01
6	1	116.99	17	18	1.96	116.82	107	13	5.61E-02	48.8	
7	0	277.33	25	14	1.43	277.20	274	8	8.48E-02	32.2	
8	0	303.86	50	27	1.92	303.73	300	8	1.65E-01	22.9	
9	0	334.85	35	19	2.32	334.73	330	12	1.16E-01	29.8	
10	0	356.67	221	11	2.14	356.56	351	11	7.37E-01	7.3	
11	0	365.67	7	8	1.07	365.56	362	7	2.41E-02	72.2	
12	0	386.74	128	9	2.02	386.63	381	10	4.25E-01	10.0	
13	0	392.23	18	2	1.30	392.12	391	4	6.14E-02	26.0	
14	0	418.53	12	17	6.80	418.43	412	11	3.83E-02	74.5	
15	0	437.69	49	6	2.03	437.60	434	8	1.64E-01	16.6	
16	0	468.72	12	5	1.40	468.64	465	7	3.98E-02	42.9	
17	0	511.45	8	0	1.66	511.37	508	7	2.67E-02	35.4	
18	0	610.06	6	0	1.33	610.00	607	6	2.00E-02	40.8	

Summary of Nuclide Activity
Sample ID : 0508094-01

Page : 2
Acquisition date : 29-AUG-2005 04:49:36

Total number of lines in spectrum 18
Number of unidentified lines 14
Number of lines tentatively identified by NID 4 22.22%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.450E+02	4.450E+02	0.660E+02	14.83	
Total Activity :			4.450E+02	4.450E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	3.792E+02	3.792E+02	1.143E+02	30.15	
Total Activity :			3.792E+02	3.792E+02			

Grand Total Activity : 8.243E+02 8.243E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	4.110E+02	4.111E+02	22.45	OK
	302.84	17.80	4.915E+00	5.108E+02	5.108E+02	54.34	OK
	356.01	60.00	6.963E+00	4.767E+02	4.767E+02	21.08	OK

Final Mean for 3 Valid Peaks = 4.450E+02+/- 6.602E+01 (14.83%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.792E+02	3.792E+02	30.15	OK

Final Mean for 1 Valid Peaks = 3.792E+02+/- 1.143E+02 (30.15%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.450E+02	6.602E+01	3.493E+01	5.734E+00	12.741
TH-234	3.792E+02	1.143E+02	1.147E+02	3.677E+00	3.305

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	8.779E+00	2.912E+01	5.127E+01	1.601E+01	0.171
CD-109	1.369E+01	3.152E+02	4.340E+02	5.614E+01	0.032
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	7.082E+01	7.485E+01	1.282E+02	1.561E+01	0.552
AM-241	1.067E+01	6.567E+00	1.274E+01	2.989E-01	0.837

Jg 29-05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809402_GE1_BAFIL_87541.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : BLANK
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 04:55:50
 Sample ID : 0508094-02 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.07 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	58.54	16	5	2.10	58.37	57	14	5.50E-02	26.8	4.50E+00
2	2	62.39	97	27	2.11	62.22	57	14	3.22E-01	13.9	
3	2	66.19	48	42	2.11	66.02	57	14	1.60E-01	26.5	
4	0	81.60	315	33	2.08	81.43	76	10	1.05E+00	6.6	
5	0	94.85	39	38	5.36	94.68	88	13	1.29E-01	37.0	
6	0	113.16	111	54	2.09	113.00	107	12	3.70E-01	16.3	
7	4	161.00	16	26	2.66	160.84	156	17	5.42E-02	61.2	3.16E+00
8	4	167.00	9	18	2.66	166.84	156	17	2.97E-02	95.9	
9	0	209.32	12	7	1.26	209.18	207	5	4.10E-02	44.5	
10	0	255.77	7	6	1.34	255.64	252	6	2.46E-02	63.5	
11	0	277.20	16	15	1.17	277.07	274	7	5.18E-02	49.3	
12	1	303.29	55	4	1.80	303.17	299	13	1.84E-01	15.8	2.04E+00
13	1	307.31	10	11	2.08	307.19	299	13	3.41E-02	76.5	
14	4	334.29	26	4	2.12	334.18	331	15	8.60E-02	22.4	1.00E+00
15	4	338.73	9	3	2.78	338.61	331	15	3.08E-02	70.1	
16	4	343.26	8	1	2.78	343.15	331	15	2.77E-02	47.4	
17	3	353.11	9	1	1.91	353.00	352	16	2.97E-02	26.3	8.01E-01
18	3	356.71	215	3	2.12	356.60	352	16	7.18E-01	7.0	
19	3	364.75	7	3	2.54	364.64	352	16	2.29E-02	53.4	
20	3	384.38	57	5	2.55	384.27	381	10	1.90E-01	16.2	6.28E+00
21	3	387.58	50	15	2.01	387.48	381	10	1.67E-01	24.1	
22	0	416.88	31	3	6.41	416.78	413	9	1.05E-01	19.9	
23	0	437.80	40	3	3.00	437.71	435	6	1.35E-01	17.1	
24	0	469.12	7	5	1.55	469.03	465	7	2.33E-02	65.8	
25	0	510.91	12	0	1.35	510.83	507	7	4.00E-02	28.9	

Summary of Nuclide Activity
Sample ID : 0508094-02

Page : 2
Acquisition date : 29-AUG-2005 04:55:50

Total number of lines in spectrum 25
Number of unidentified lines 20
Number of lines tentatively identified by NID 5 20.00%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.596E+02	4.596E+02	0.646E+02	14.06	
Total Activity :			4.596E+02	4.596E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	3.906E+02	3.906E+02	1.104E+02	28.28	
AM-241	432.20Y	1.00	5.166E+00	5.166E+00	2.777E+00	53.76	
Total Activity :			3.957E+02	3.957E+02			

Grand Total Activity : 8.553E+02 8.553E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	4.386E+02	4.387E+02	21.40	OK
	302.84	17.80	4.915E+00	5.683E+02	5.683E+02	43.02	OK
	356.01	60.00	6.963E+00	4.646E+02	4.646E+02	20.57	OK

Final Mean for 3 Valid Peaks = 4.596E+02 +/- 6.460E+01 (14.06%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.906E+02	3.906E+02	28.28	OK

Final Mean for 1 Valid Peaks = 3.906E+02 +/- 1.104E+02 (28.28%)

AM-241	59.54	35.90*	8.010E+01	5.166E+00	5.166E+00	53.76	OK
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Final Mean for 1 Valid Peaks = 5.166E+00 +/- 2.777E+00 (53.76%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.596E+02	6.460E+01	3.273E+01	5.372E+00	14.043
TH-234	3.906E+02	1.104E+02	1.177E+02	3.770E+00	3.319
AM-241	5.166E+00	2.777E+00	9.111E+00	2.137E-01	0.567

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-2.005E+00	2.598E+01	4.387E+01	1.369E+01	-0.046
CD-109	2.277E+01	2.795E+02	3.945E+02	5.103E+01	0.058
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	1.734E+01	7.878E+01	1.149E+02	1.399E+01	0.151

2P
8/29/05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809403_GE1_BAFIL_87542.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : VPSCR081705SL01
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 05:01:38
 Sample ID : 0508094-03 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	61.77	81	73	1.32	61.59	58	8	2.70E-01	21.3	
2	4	81.57	302	28	2.25	81.39	77	11	1.01E+00	6.3	5.66E+00
3	4	85.26	13	27	2.58	85.08	77	11	4.48E-02	106.1	
4	0	94.07	20	21	1.74	93.90	90	6	6.51E-02	44.3	
5	0	112.19	67	44	1.53	112.03	108	9	2.23E-01	21.5	
6	0	125.05	14	10	1.89	124.88	122	6	4.58E-02	45.9	
7	0	277.20	36	3	2.30	277.07	274	7	1.20E-01	18.6	
8	0	304.00	57	23	1.88	303.88	299	11	1.92E-01	20.6	
9	6	334.58	32	14	3.36	334.46	330	12	1.06E-01	26.6	3.27E+00
10	6	339.44	12	2	2.50	339.32	330	12	3.93E-02	35.0	
11	0	356.71	230	2	2.10	356.60	354	7	7.66E-01	6.7	
12	1	384.17	37	5	1.91	384.06	382	9	1.24E-01	19.0	1.59E+00
13	1	387.18	83	15	2.11	387.08	382	9	2.76E-01	14.9	
14	1	412.10	6	4	1.93	412.00	410	14	2.09E-02	52.8	2.68E+00
15	1	419.10	7	3	1.93	419.00	410	14	2.36E-02	77.1	
16	0	437.71	47	0	2.20	437.62	433	9	1.57E-01	14.6	
17	0	468.59	9	2	2.06	468.50	466	6	3.08E-02	39.4	
18	0	511.41	7	2	1.23	511.33	508	7	2.37E-02	48.8	

Summary of Nuclide Activity
Sample ID : 0508094-03

Page : 2
Acquisition date : 29-AUG-2005 05:01:38

Total number of lines in spectrum 18
Number of unidentified lines 13
Number of lines tentatively identified by NID 5 27.78%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.595E+02	4.595E+02	0.648E+02	14.10	
NP-237	2.14E+06Y	1.00	6.266E+01	6.266E+01	13.32E+01	212.58	
Total Activity :			5.221E+02	5.221E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	3.279E+02	3.279E+02	1.406E+02	42.87	
Total Activity :			3.279E+02	3.279E+02			

Grand Total Activity : 8.500E+02 8.500E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	4.195E+02	4.195E+02	21.13	OK
	302.84	17.80	4.915E+00	5.920E+02	5.920E+02	50.55	OK
	356.01	60.00	6.963E+00	4.955E+02	4.955E+02	20.19	OK

Final Mean for 3 Valid Peaks = 4.595E+02+/- 6.478E+01 (14.10%)

NP-237	86.50	12.60*	1.532E+01	6.266E+01	6.266E+01	212.58	OK
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Final Mean for 1 Valid Peaks = 6.266E+01+/- 1.332E+02 (212.58%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.279E+02	3.279E+02	42.87	OK

Final Mean for 1 Valid Peaks = 3.279E+02+/- 1.406E+02 (42.87%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.595E+02	6.478E+01	4.016E+01	6.592E+00	11.442
TH-234	3.279E+02	1.406E+02	1.583E+02	5.071E+00	2.072
NP-237	6.266E+01	1.332E+02	1.348E+02	1.642E+01	0.465

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-3.078E+01	3.609E+01	4.440E+01	1.386E+01	-0.693
CD-109	9.374E-02	3.308E+02	4.482E+02	5.798E+01	0.000
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
AM-241	1.305E+01	6.712E+00	1.329E+01	3.118E-01	0.982

JP
8/29/06

VAX/VMS Peak Search Report Generated 29-AUG-2005 05:13:08.88

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809404_GE1_BAFIL_87543.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : VPSCR081705SL01
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 05:07:55
 Sample ID : 0508094-04 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.07 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	4	62.57	108	32	2.43	62.39	58	13	3.61E-01	13.3	2.15E+00
2	4	66.56	41	31	1.88	66.38	58	13	1.35E-01	28.9	
3	0	81.69	301	47	2.11	81.52	77	11	1.00E+00	7.3	
4	2	112.49	61	28	2.06	112.33	106	15	2.03E-01	18.9	1.02E+00
5	2	117.04	15	25	2.16	116.88	106	15	5.04E-02	60.8	
6	0	176.94	20	17	2.62	176.79	173	8	6.67E-02	42.7	
7	0	276.21	31	6	2.68	276.08	270	12	1.03E-01	23.9	
8	4	303.36	50	12	1.81	303.24	300	13	1.68E-01	17.3	4.04E+00
9	4	308.10	13	17	2.76	307.98	300	13	4.46E-02	69.2	
10	0	335.45	18	16	1.91	335.33	331	7	6.02E-02	43.4	
11	3	352.92	8	6	2.10	352.81	350	11	2.68E-02	66.7	1.51E+00
12	3	356.80	195	4	1.93	356.69	350	11	6.51E-01	7.3	
13	3	384.74	51	4	2.55	384.63	381	14	1.71E-01	21.2	1.57E+00
14	3	387.48	51	4	2.55	387.38	381	14	1.70E-01	22.1	
15	3	391.65	19	3	2.56	391.54	381	14	6.26E-02	29.9	
16	0	417.70	25	16	4.83	417.60	411	13	8.31E-02	38.8	
17	0	437.58	41	0	2.03	437.49	434	7	1.37E-01	15.6	

Summary of Nuclide Activity
Sample ID : 0508094-04

Page : 2
Acquisition date : 29-AUG-2005 05:07:55

Total number of lines in spectrum 17
Number of unidentified lines 13
Number of lines tentatively identified by NID 4 23.53%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.269E+02	4.269E+02	0.621E+02	14.54	
Total Activity :			4.269E+02	4.269E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	4.382E+02	4.382E+02	1.191E+02	27.17	
Total Activity :			4.382E+02	4.382E+02			

Grand Total Activity : 8.651E+02 8.651E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

				Uncorrected	Decay Corr	2-Sigma	Status
Nuclide	Energy	%Abn	%Eff	pCi/FILTER	pCi/FILTER	%Error	
BA-133	81.00	33.00*	1.963E+01	4.184E+02	4.184E+02	22.27	OK
	302.84	17.80	4.915E+00	5.187E+02	5.187E+02	45.33	OK
	356.01	60.00	6.963E+00	4.215E+02	4.215E+02	21.10	OK

Final Mean for 3 Valid Peaks = 4.269E+02+/- 6.205E+01 (14.54%)

Nuclide Type: NATURAL

				Uncorrected	Decay Corr	2-Sigma	Status
Nuclide	Energy	%Abn	%Eff	pCi/FILTER	pCi/FILTER	%Error	
TH-234	63.29	3.80*	5.865E+01	4.382E+02	4.382E+02	27.17	OK

Final Mean for 1 Valid Peaks = 4.382E+02+/- 1.191E+02 (27.17%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.269E+02	6.205E+01	3.285E+01	5.393E+00	12.994
TH-234	4.382E+02	1.191E+02	1.133E+02	3.629E+00	3.870

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	7.503E+00	2.577E+01	4.614E+01	1.440E+01	0.163
CD-109	-2.639E+02	2.786E+02	3.960E+02	5.122E+01	-0.667
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	1.090E+01	7.272E+01	1.263E+02	1.538E+01	0.086
AM-241	6.987E+00	6.915E+00	1.262E+01	2.962E-01	0.553

JP
8/29/05

VAX/VMS Peak Search Report Generated 29-AUG-2005 05:18:36.36

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809405_GE1_BAFIL_87544.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : VPSCR081705SL02
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 05:13:20
 Sample ID : 0508094-05 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	4	62.62	120	27	2.30	62.44	58	13	4.01E-01	11.9	2.08E+00
2	4	66.61	47	35	2.56	66.44	58	13	1.57E-01	29.9	
3	3	81.62	287	31	1.98	81.45	75	23	9.56E-01	6.6	1.25E+00
4	3	93.72	22	22	2.35	93.55	75	23	7.17E-02	48.1	
5	6	112.41	94	29	2.22	112.25	108	13	3.13E-01	13.8	1.96E+00
6	6	117.51	37	9	2.90	117.35	108	13	1.22E-01	27.4	
7	0	186.06	24	15	1.59	185.91	182	8	7.84E-02	35.8	
8	0	230.36	28	24	11.77	230.22	223	17	9.29E-02	45.4	
9	0	277.40	14	18	2.84	277.27	271	11	4.75E-02	64.7	
10	0	303.78	66	12	2.13	303.66	301	9	2.20E-01	15.4	
11	0	334.21	24	18	1.62	334.10	329	9	8.11E-02	37.3	
12	0	356.85	195	12	2.00	356.73	351	12	6.50E-01	8.0	
13	0	386.38	107	24	2.07	386.27	381	11	3.57E-01	13.2	
14	0	417.63	12	17	3.47	417.53	413	10	3.95E-02	68.7	
15	0	423.84	7	1	1.06	423.75	422	5	2.40E-02	43.0	
16	0	437.90	47	0	1.97	437.81	435	8	1.57E-01	14.6	
17	0	468.84	14	2	2.48	468.76	465	7	4.75E-02	30.6	

Summary of Nuclide Activity
Sample ID : 0508094-05

Page : 2
Acquisition date : 29-AUG-2005 05:13:20

Total number of lines in spectrum 17
Number of unidentified lines 13
Number of lines tentatively identified by NID 4 23.53%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.212E+02	4.212E+02	0.614E+02	14.59	
Total Activity :			4.212E+02	4.212E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	4.863E+02	4.863E+02	1.181E+02	24.29	
Total Activity :			4.863E+02	4.863E+02			

Grand Total Activity : 9.074E+02 9.075E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	3.991E+02	3.991E+02	21.45	OK
	302.84	17.80	4.915E+00	6.782E+02	6.783E+02	42.52	OK
	356.01	60.00	6.963E+00	4.205E+02	4.205E+02	22.03	OK

Final Mean for 3 Valid Peaks = 4.212E+02+/- 6.144E+01 (14.59%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	4.863E+02	4.863E+02	24.29	OK

Final Mean for 1 Valid Peaks = 4.863E+02+/- 1.181E+02 (24.29%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.212E+02	6.144E+01	3.913E+01	6.424E+00	10.763
TH-234	4.863E+02	1.181E+02	1.133E+02	3.629E+00	4.294

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	3.328E+00	2.330E+01	4.142E+01	1.293E+01	0.080
CD-109	-5.220E+01	2.460E+02	4.514E+02	5.839E+01	-0.116
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	1.263E+01	7.177E+01	1.366E+02	1.664E+01	0.092
AM-241	9.518E+00	6.267E+00	1.217E+01	2.854E-01	0.782

28.29-05

VAX/VMS Peak Search Report Generated 29-AUG-2005 05:26:30.39

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE] SMP_050809406_GE1_BAFIL_87545.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : VPSCR081705SL03
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 05:21:12
 Sample ID : 0508094-06 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	61.73	52	59	1.84	61.56	59	7	1.72E-01	28.2	
2	0	67.67	23	47	1.94	67.49	65	6	7.56E-02	54.2	
3	0	81.90	260	33	2.00	81.73	78	8	8.68E-01	7.1	
4	0	113.34	47	51	1.69	113.17	109	8	1.57E-01	30.3	
5	0	255.81	19	8	4.99	255.68	252	8	6.23E-02	35.1	
6	0	277.03	17	2	2.15	276.90	274	6	5.81E-02	26.5	
7	0	303.99	62	12	2.13	303.86	300	10	2.07E-01	16.5	
8	0	317.68	8	2	2.12	317.56	315	6	2.75E-02	42.4	
9	3	334.73	31	4	2.40	334.61	331	11	1.05E-01	20.9	1.10E+00
10	3	339.11	12	3	2.53	339.00	331	11	3.86E-02	41.0	
11	0	356.81	157	15	1.96	356.69	351	12	5.23E-01	9.4	
12	2	384.47	30	12	2.32	384.36	381	14	1.02E-01	29.4	2.16E+00
13	2	387.90	61	6	1.97	387.79	381	14	2.02E-01	16.3	
14	2	392.02	11	4	2.32	391.91	381	14	3.64E-02	77.3	
15	1	415.29	16	1	2.12	415.19	411	14	5.24E-02	30.2	5.11E-01
16	1	419.29	15	4	2.12	419.19	411	14	4.91E-02	38.7	
17	0	437.78	37	2	2.10	437.69	435	6	1.24E-01	17.2	
18	0	468.69	8	4	1.87	468.60	464	7	2.50E-02	55.2	
19	0	512.10	12	3	2.25	512.03	509	6	4.11E-02	35.8	
20	0	610.72	6	0	1.47	610.67	608	5	2.00E-02	40.8	

Summary of Nuclide Activity
Sample ID : 0508094-06

Page : 2
Acquisition date : 29-AUG-2005 05:21:12

Total number of lines in spectrum 20
Number of unidentified lines 16
Number of lines tentatively identified by NID 4 20.00%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	3.617E+02	3.617E+02	0.560E+02	15.47	
Total Activity :			3.617E+02	3.617E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	2.087E+02	2.087E+02	1.182E+02	56.66	
Total Activity :			2.087E+02	2.087E+02			

Grand Total Activity : 5.704E+02 5.704E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

				Uncorrected	Decay Corr	2-Sigma	Status
Nuclide	Energy	%Abn	%Eff	pCi/FILTER	pCi/FILTER	%Error	
BA-133	81.00	33.00*	1.963E+01	3.621E+02	3.621E+02	22.06	OK
	302.84	17.80	4.915E+00	6.390E+02	6.391E+02	44.14	OK
	356.01	60.00	6.963E+00	3.381E+02	3.381E+02	24.14	OK

Final Mean for 3 Valid Peaks = 3.617E+02+/- 5.596E+01 (15.47%)

Nuclide Type: NATURAL

				Uncorrected	Decay Corr	2-Sigma	Status
Nuclide	Energy	%Abn	%Eff	pCi/FILTER	pCi/FILTER	%Error	
TH-234	63.29	3.80*	5.865E+01	2.087E+02	2.087E+02	56.66	OK

Final Mean for 1 Valid Peaks = 2.087E+02+/- 1.182E+02 (56.66%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	3.617E+02	5.596E+01	3.586E+01	5.887E+00	10.088
TH-234	2.087E+02	1.182E+02	1.247E+02	3.994E+00	1.674

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-1.405E+01	2.156E+01	3.449E+01	1.077E+01	-0.407
CD-109	-1.263E+02	2.549E+02	3.980E+02	5.149E+01	-0.317
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	2.028E+01	5.769E+01	1.069E+02	1.302E+01	0.190
AM-241	1.046E+01	5.573E+00	1.145E+01	2.686E-01	0.914

28.29.36

VAX/VMS Peak Search Report Generated 29-AUG-2005 05:32:41.58

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809407_GE1_BAFIL_87547.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : VPSCR081705SL04
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 05:27:25
 Sample ID : 0508094-07 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	62.43	79	29	2.11	62.25	58	15	2.62E-01	15.9	1.29E+00
2	2	66.54	36	25	2.11	66.37	58	15	1.21E-01	32.9	
3	0	81.78	276	58	2.07	81.61	77	9	9.19E-01	7.8	
4	1	112.34	77	20	1.89	112.18	108	16	2.56E-01	14.5	1.35E+00
5	1	116.99	20	19	1.96	116.82	108	16	6.83E-02	40.0	
6	0	277.32	20	10	1.49	277.19	273	7	6.73E-02	34.4	
7	0	303.26	61	10	1.83	303.13	298	9	2.04E-01	16.0	
8	2	334.26	39	0	2.04	334.15	331	13	1.29E-01	16.1	7.21E-01
9	2	338.15	10	0	2.30	338.04	331	13	3.29E-02	52.6	
10	0	356.85	178	5	1.91	356.74	352	10	5.93E-01	7.9	
11	0	365.75	16	6	2.83	365.64	362	8	5.23E-02	37.1	
12	0	386.52	110	18	2.07	386.42	382	9	3.66E-01	11.8	
13	0	392.68	17	4	1.83	392.58	391	6	5.62E-02	34.8	
14	0	419.42	12	11	1.56	419.32	417	7	4.16E-02	53.4	
15	0	437.70	38	2	1.99	437.60	433	8	1.26E-01	17.6	
16	0	468.60	6	4	1.12	468.52	466	6	2.13E-02	59.5	
17	0	512.13	6	2	2.08	512.05	508	7	2.10E-02	52.7	

Summary of Nuclide Activity
Sample ID : 0508094-07

Page : 2
Acquisition date : 29-AUG-2005 05:27:25

Total number of lines in spectrum 17
Number of unidentified lines 13
Number of lines tentatively identified by NID 4 23.53%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	3.954E+02	3.954E+02	0.593E+02	15.01	
Total Activity :			3.954E+02	3.954E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	3.182E+02	3.182E+02	1.028E+02	32.29	
Total Activity :			3.182E+02	3.182E+02			

Grand Total Activity : 7.136E+02 7.136E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	3.836E+02	3.836E+02	23.03	OK
	302.84	17.80	4.915E+00	6.315E+02	6.315E+02	43.35	OK
	356.01	60.00	6.963E+00	3.838E+02	3.838E+02	21.83	OK

Final Mean for 3 Valid Peaks = 3.954E+02+/- 5.935E+01 (15.01%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.182E+02	3.182E+02	32.29	OK

Final Mean for 1 Valid Peaks = 3.182E+02+/- 1.028E+02 (32.29%)

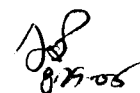
Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	3.954E+02	5.935E+01	3.913E+01	6.424E+00	10.104
TH-234	3.182E+02	1.028E+02	1.102E+02	3.531E+00	2.888

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-8.501E+00	2.601E+01	4.174E+01	1.303E+01	-0.204
CD-109	-2.769E+02	2.834E+02	4.008E+02	5.185E+01	-0.691
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	-1.837E+01	7.267E+01	1.185E+02	1.443E+01	-0.155
AM-241	6.967E+00	6.740E+00	1.238E+01	2.904E-01	0.563



Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809408_GE1_BAFIL_87548.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : VPSCR081705SL05
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 05:33:44
 Sample ID : 0508094-08 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.31	64	39	1.47	62.13	59	6	2.15E-01	19.7	
2	0	81.79	265	22	2.07	81.61	77	10	8.84E-01	7.0	
3	0	93.57	10	21	1.98	93.40	90	7	3.33E-02	82.3	
4	5	112.56	67	38	2.22	112.39	108	13	2.22E-01	19.0	2.12E+00
5	5	117.26	15	33	2.88	117.09	108	13	5.09E-02	71.2	
6	0	277.20	17	11	1.32	277.07	274	7	5.74E-02	39.6	
7	0	304.51	30	29	2.11	304.39	299	9	1.00E-01	37.2	
8	0	334.60	24	4	1.87	334.48	332	5	8.08E-02	23.6	
9	0	356.81	188	11	2.00	356.70	352	9	6.26E-01	8.0	
10	0	386.39	99	19	4.37	386.28	382	9	3.31E-01	12.7	
11	0	392.02	18	4	1.48	391.92	391	4	5.85E-02	31.2	
12	0	418.23	19	11	3.14	418.13	411	15	6.22E-02	49.8	
13	0	437.93	30	0	1.22	437.83	435	7	1.00E-01	18.3	
14	0	468.50	11	4	2.10	468.41	464	8	3.67E-02	43.6	

Summary of Nuclide Activity
Sample ID : 0508094-08

Page : 2
Acquisition date : 29-AUG-2005 05:33:44

Total number of lines in spectrum 14
Number of unidentified lines 10
Number of lines tentatively identified by NID 4 28.57%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	3.809E+02	3.810E+02	0.582E+02	15.28	
Total Activity :			3.809E+02	3.810E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	2.604E+02	2.604E+02	1.036E+02	39.79	
Total Activity :			2.604E+02	2.604E+02			

Grand Total Activity : 6.413E+02 6.413E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	3.690E+02	3.690E+02	21.92	OK
	302.84	17.80	4.915E+00	3.091E+02	3.091E+02	79.97	OK
	356.01	60.00	6.963E+00	4.048E+02	4.048E+02	22.01	OK

Final Mean for 3 Valid Peaks = 3.810E+02+/- 5.820E+01 (15.28%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	2.604E+02	2.604E+02	39.79	OK

Final Mean for 1 Valid Peaks = 2.604E+02+/- 1.036E+02 (39.79%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	3.810E+02	5.820E+01	3.643E+01	5.980E+00	10.458
TH-234	2.604E+02	1.036E+02	1.451E+02	4.651E+00	1.794

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	1.408E+01	2.852E+01	5.142E+01	1.605E+01	0.274
CD-109	4.825E+01	2.625E+02	3.844E+02	4.972E+01	0.126
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	4.992E+01	7.753E+01	1.244E+02	1.515E+01	0.401
AM-241	5.596E+00	5.851E+00	1.093E+01	2.563E-01	0.512

JP
024-02

VAX/VMS Peak Search Report Generated 29-AUG-2005 05:44:55.54

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809409_GE1_BAFIL_87549.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : VPSCR081705SL06
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 05:39:37
 Sample ID : 0508094-09 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.07 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.33	81	68	2.09	62.15	58	8	2.70E-01	20.8	
2	0	81.77	291	41	1.81	81.60	76	11	9.69E-01	7.3	
3	2	93.54	15	17	2.14	93.37	90	12	4.92E-02	55.2	2.40E+00
4	2	98.84	11	22	2.15	98.67	90	12	3.77E-02	68.6	
5	2	107.54	15	2	2.15	107.37	106	14	4.86E-02	22.5	2.24E+00
6	2	112.15	59	15	2.16	111.98	106	14	1.98E-01	17.6	
7	2	115.79	16	22	2.16	115.62	106	14	5.50E-02	64.4	
8	0	251.77	3	17	2.43	251.64	245	8	1.10E-02	218.5	
9	0	277.11	35	2	1.84	276.98	274	8	1.15E-01	18.5	
10	3	303.34	43	9	1.95	303.22	299	12	1.42E-01	20.0	1.69E+00
11	3	307.93	20	9	2.51	307.81	299	12	6.56E-02	33.1	
12	0	334.81	19	14	1.85	334.69	331	7	6.47E-02	39.1	
13	2	353.11	10	0	1.91	353.00	351	11	3.37E-02	28.0	1.70E+00
14	2	356.72	189	0	2.05	356.60	351	11	6.31E-01	7.3	
15	0	366.63	8	6	1.51	366.52	363	8	2.54E-02	67.0	
16	2	384.51	48	9	2.32	384.40	380	16	1.60E-01	21.1	1.31E+00
17	2	387.75	73	6	2.11	387.65	380	16	2.43E-01	16.0	
18	2	391.51	22	4	2.32	391.40	380	16	7.30E-02	42.4	
19	0	415.33	7	12	1.19	415.23	412	7	2.40E-02	88.2	
20	1	433.09	6	0	1.94	433.00	432	9	2.05E-02	28.1	3.95E-01
21	1	437.29	35	0	2.13	437.19	432	9	1.17E-01	17.1	
22	0	468.48	14	2	1.58	468.39	466	6	4.73E-02	30.1	
23	0	511.81	6	2	1.08	511.73	509	6	2.10E-02	50.7	

Summary of Nuclide Activity
Sample ID : 0508094-09

Page : 2
Acquisition date : 29-AUG-2005 05:39:37

Total number of lines in spectrum 23
Number of unidentified lines 19
Number of lines tentatively identified by NID 4 17.39%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.091E+02	4.091E+02	0.598E+02	14.61	
Total Activity :			4.091E+02	4.091E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	3.275E+02	3.275E+02	1.375E+02	41.98	
Total Activity :			3.275E+02	3.275E+02			

Grand Total Activity : 7.366E+02 7.366E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	4.046E+02	4.046E+02	22.27	OK
	302.84	17.80	4.915E+00	4.391E+02	4.391E+02	49.50	OK
	356.01	60.00	6.963E+00	4.085E+02	4.085E+02	21.01	OK

Final Mean for 3 Valid Peaks = 4.091E+02+/- 5.976E+01 (14.61%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.275E+02	3.275E+02	41.98	OK

Final Mean for 1 Valid Peaks = 3.275E+02+/- 1.375E+02 (41.98%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.091E+02	5.976E+01	3.586E+01	5.887E+00	11.408
TH-234	3.275E+02	1.375E+02	1.629E+02	5.220E+00	2.011

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	8.930E+00	2.518E+01	4.562E+01	1.424E+01	0.196
CD-109	-5.760E+01	2.893E+02	3.753E+02	4.855E+01	-0.153
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	6.449E+01	7.396E+01	1.254E+02	1.527E+01	0.514
AM-241	6.520E+00	7.288E+00	1.307E+01	3.066E-01	0.499

78
829-06

VAX/VMS Peak Search Report Generated 29-AUG-2005 05:50:25.96

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809410_GE1_BAFIL_87550.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL07
Deposition Date :
Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 05:45:09
Sample ID : 0508094-10 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE1 Detector Geometry: BAFIL
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	3	62.75	53	33	2.32	62.58	58	12	1.75E-01	24.5	2.08E+00
2	3	65.99	38	34	2.32	65.82	58	12	1.26E-01	36.5	
3	0	81.72	254	27	2.06	81.55	77	10	8.48E-01	7.4	
4	0	92.37	28	16	2.63	92.20	87	9	9.43E-02	31.5	
5	3	109.33	10	31	2.37	109.16	106	13	3.42E-02	106.9	4.60E+00
6	3	112.58	55	30	2.37	112.41	106	13	1.83E-01	22.2	
7	0	141.61	23	24	5.96	141.45	134	13	7.53E-02	50.8	
8	0	277.01	15	11	1.95	276.88	272	9	4.99E-02	47.8	
9	0	294.76	14	5	5.62	294.63	290	9	4.50E-02	39.3	
10	3	303.50	66	4	2.33	303.38	299	12	2.20E-01	13.6	1.85E+00
11	3	308.02	11	3	2.51	307.90	299	12	3.56E-02	42.4	
12	0	334.65	24	13	2.07	334.54	331	7	8.06E-02	31.6	
13	0	356.76	187	3	2.30	356.64	350	10	6.22E-01	7.5	
14	2	384.35	40	4	2.32	384.25	381	14	1.34E-01	22.2	3.22E+00
15	2	387.50	49	3	1.92	387.40	381	14	1.65E-01	19.1	
16	2	391.51	16	4	2.32	391.40	381	14	5.37E-02	46.5	
17	0	419.55	10	12	1.77	419.45	416	7	3.20E-02	75.6	
18	0	437.92	35	7	2.32	437.83	434	7	1.17E-01	21.0	
19	0	511.28	8	1	1.28	511.21	509	5	2.52E-02	43.0	

Summary of Nuclide Activity
Sample ID : 0508094-10

Page : 2
Acquisition date : 29-AUG-2005 05:45:09

Total number of lines in spectrum 19
Number of unidentified lines 15
Number of lines tentatively identified by NID 4 21.05%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	3.896E+02	3.896E+02	0.569E+02	14.61	
Total Activity :			3.896E+02	3.896E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	2.124E+02	2.124E+02	1.045E+02	49.20	
Total Activity :			2.124E+02	2.124E+02			

Grand Total Activity : 6.020E+02 6.020E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	3.537E+02	3.537E+02	22.40	OK
	302.84	17.80	4.915E+00	6.797E+02	6.798E+02	39.88	OK
	356.01	60.00	6.963E+00	4.026E+02	4.026E+02	21.33	OK

Final Mean for 3 Valid Peaks = 3.896E+02+/- 5.693E+01 (14.61%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	2.124E+02	2.124E+02	49.20	OK

Final Mean for 1 Valid Peaks = 2.124E+02+/- 1.045E+02 (49.20%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	3.896E+02	5.693E+01	3.781E+01	6.206E+00	10.305
TH-234	2.124E+02	1.045E+02	9.690E+01	3.105E+00	2.192

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-4.170E+00	2.484E+01	4.140E+01	1.292E+01	-0.101
CD-109	1.277E+02	2.295E+02	3.792E+02	4.905E+01	0.337
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	2.691E+01	6.223E+01	1.003E+02	1.222E+01	0.268
AM-241	2.675E+00	5.937E+00	1.048E+01	2.460E-01	0.255

702
825-06

VAX/VMS Peak Search Report Generated 29-AUG-2005 05:57:49.17

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809411_GE1_BAFIL_87551.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : VPSCR081705SL08
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 05:52:30
 Sample ID : 0508094-11 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.07 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	4	62.75	88	36	2.55	62.57	57	14	2.93E-01	18.0	3.17E+00
2	4	66.37	50	34	2.56	66.19	57	14	1.68E-01	31.5	
3	0	81.47	309	41	2.16	81.30	77	10	1.03E+00	6.9	
4	0	94.63	18	26	1.54	94.46	91	7	5.98E-02	52.9	
5	0	112.97	92	48	2.08	112.80	107	12	3.07E-01	18.3	
6	3	142.08	18	4	2.40	141.92	137	20	6.09E-02	38.0	2.48E+00
7	3	153.42	9	7	2.41	153.27	137	20	3.12E-02	59.6	
8	0	196.13	5	36	3.44	195.98	189	10	1.74E-02	212.3	
9	0	260.76	19	3	2.87	260.63	256	11	6.29E-02	28.8	
10	0	276.71	25	5	2.18	276.58	272	10	8.33E-02	26.1	
11	3	303.74	38	8	2.25	303.61	299	16	1.26E-01	21.3	1.70E+00
12	3	308.07	17	11	2.51	307.95	299	16	5.54E-02	49.3	
13	0	333.96	41	7	2.51	333.84	329	8	1.36E-01	19.7	
14	0	356.75	220	5	2.00	356.63	352	10	7.35E-01	7.0	
15	3	384.37	46	10	2.55	384.26	380	17	1.53E-01	24.1	2.21E+00
16	3	387.54	67	6	2.16	387.44	380	17	2.22E-01	17.5	
17	3	391.74	18	4	2.43	391.64	380	17	6.00E-02	46.9	
18	0	416.26	23	19	2.69	416.16	412	10	7.57E-02	40.8	
19	0	437.53	50	0	2.10	437.44	435	6	1.67E-01	14.1	
20	0	468.80	7	6	2.32	468.71	466	6	2.33E-02	67.0	

Summary of Nuclide Activity
Sample ID : 0508094-11

Page : 2
Acquisition date : 29-AUG-2005 05:52:30

Total number of lines in spectrum 20
Number of unidentified lines 16
Number of lines tentatively identified by NID 4 20.00%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.452E+02	4.452E+02	0.642E+02	14.41	
Total Activity :			4.452E+02	4.452E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	3.550E+02	3.550E+02	1.294E+02	36.44	
Total Activity :			3.550E+02	3.550E+02			

Grand Total Activity : 8.002E+02 8.002E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	4.295E+02	4.295E+02	21.78	OK
	302.84	17.80	4.915E+00	3.902E+02	3.902E+02	51.72	OK
	356.01	60.00	6.963E+00	4.753E+02	4.753E+02	20.62	OK

Final Mean for 3 Valid Peaks = 4.452E+02+/- 6.416E+01 (14.41%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.550E+02	3.550E+02	36.44	OK

Final Mean for 1 Valid Peaks = 3.550E+02+/- 1.294E+02 (36.44%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.452E+02	6.416E+01	3.754E+01	6.162E+00	11.860
TH-234	3.550E+02	1.294E+02	1.191E+02	3.816E+00	2.981

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	3.656E+00	2.679E+01	4.668E+01	1.457E+01	0.078
CD-109	1.720E+02	2.978E+02	4.652E+02	6.017E+01	0.370
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	4.858E+01	8.260E+01	1.293E+02	1.574E+01	0.376
AM-241	1.094E+01	6.183E+00	1.286E+01	3.017E-01	0.851

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8/29/05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809412_GE1_BAFIL_87555.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : VPSCR081705SL09
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 06:00:15
 Sample ID : 0508094-12 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	1	62.27	83	39	1.92	62.10	58	12	2.76E-01	15.6	9.31E+00
2	1	67.11	40	43	1.91	66.93	58	12	1.32E-01	28.3	
3	0	81.78	306	40	2.03	81.61	77	11	1.02E+00	7.0	
4	0	94.02	16	34	1.00	93.85	90	8	5.42E-02	66.8	
5	2	112.43	74	20	1.92	112.26	107	18	2.45E-01	15.1	1.02E+00
6	2	116.79	29	15	2.16	116.62	107	18	9.69E-02	35.9	
7	0	214.22	7	11	2.69	214.08	211	7	2.17E-02	91.5	
8	0	277.55	40	15	1.87	277.42	272	10	1.33E-01	24.1	
9	3	303.53	54	5	1.96	303.41	299	12	1.79E-01	15.8	7.96E-01
10	3	307.81	9	8	2.51	307.69	299	12	2.94E-02	60.1	
11	0	334.43	21	12	2.49	334.32	331	7	7.00E-02	34.1	
12	0	356.75	210	6	2.10	356.64	351	12	7.01E-01	7.3	
13	0	386.40	114	23	4.63	386.29	382	9	3.80E-01	12.0	
14	0	392.35	21	5	1.32	392.24	391	5	7.05E-02	29.9	
15	0	437.93	42	0	1.57	437.83	435	6	1.40E-01	15.4	
16	0	468.86	13	0	2.17	468.77	465	8	4.33E-02	27.7	
17	0	511.33	12	0	1.66	511.25	507	9	4.00E-02	28.9	

Summary of Nuclide Activity
Sample ID : 0508094-12

Page : 2
Acquisition date : 29-AUG-2005 06:00:15

Total number of lines in spectrum 17
Number of unidentified lines 13
Number of lines tentatively identified by NID 4 23.53%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.478E+02	4.479E+02	0.643E+02	14.35	
Total Activity :			4.478E+02	4.479E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	3.352E+02	3.352E+02	1.062E+02	31.68	
Total Activity :			3.352E+02	3.352E+02			

Grand Total Activity : 7.830E+02 7.830E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	4.259E+02	4.259E+02	21.94	OK
	302.84	17.80	4.915E+00	5.534E+02	5.534E+02	43.04	OK
	356.01	60.00	6.963E+00	4.538E+02	4.538E+02	21.00	OK

Final Mean for 3 Valid Peaks = 4.479E+02+/- 6.425E+01 (14.35%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.352E+02	3.352E+02	31.68	OK

Final Mean for 1 Valid Peaks = 3.352E+02+/- 1.062E+02 (31.68%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.479E+02	6.425E+01	3.348E+01	5.496E+00	13.377
TH-234	3.352E+02	1.062E+02	1.233E+02	3.951E+00	2.719

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-8.382E-01	2.614E+01	4.447E+01	1.388E+01	-0.019
CD-109	1.076E+02	2.493E+02	3.922E+02	5.074E+01	0.274
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	3.695E+01	7.583E+01	1.184E+02	1.442E+01	0.312
AM-241	7.571E+00	7.380E+00	1.336E+01	3.134E-01	0.567

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8-24-05

VAX/VMS Peak Search Report Generated 29-AUG-2005 06:13:17.27

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809413_GE1_BAFIL_87556.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : VPSCR081705SL10
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 06:08:03
 Sample ID : 0508094-13 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	4	62.58	73	35	2.26	62.40	58	17	2.42E-01	18.1	1.05E+00
2	4	66.37	26	34	2.56	66.19	58	17	8.64E-02	54.4	
3	0	81.90	218	39	2.04	81.72	77	11	7.27E-01	8.9	
4	0	93.54	18	29	4.59	93.37	89	8	6.05E-02	55.9	
5	0	113.00	75	33	1.98	112.83	107	11	2.50E-01	18.8	
6	0	149.28	13	14	1.89	149.12	145	9	4.17E-02	60.1	
7	0	277.31	14	5	1.76	277.18	274	6	4.81E-02	35.2	
8	0	303.93	42	12	2.00	303.81	301	9	1.40E-01	21.2	
9	6	334.20	28	0	2.64	334.09	330	11	9.19E-02	20.2	1.47E+00
10	6	338.32	9	0	2.29	338.20	330	11	2.84E-02	35.2	
11	0	356.99	168	19	1.96	356.88	352	11	5.60E-01	9.2	
12	4	384.19	51	3	2.58	384.09	381	14	1.70E-01	16.6	2.22E+00
13	4	387.56	68	4	2.24	387.46	381	14	2.27E-01	16.6	
14	4	391.83	17	3	2.62	391.72	381	14	5.75E-02	31.5	
15	4	414.99	15	3	2.82	414.90	413	9	5.00E-02	28.3	7.84E-01
16	4	418.72	6	7	2.83	418.62	413	9	1.98E-02	102.4	
17	0	438.07	22	9	2.38	437.98	432	9	7.22E-02	33.0	
18	0	467.81	11	0	3.45	467.73	465	6	3.67E-02	30.2	
19	0	511.08	9	0	3.00	511.00	508	7	3.00E-02	33.3	

Summary of Nuclide Activity
Sample ID : 0508094-13

Page : 2
Acquisition date : 29-AUG-2005 06:08:03

Total number of lines in spectrum	19	
Number of unidentified lines	15	
Number of lines tentatively identified by NID	4	21.05%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	3.349E+02	3.349E+02	0.547E+02	16.34	
Total Activity :			3.349E+02	3.349E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	2.936E+02	2.936E+02	1.075E+02	36.60	
Total Activity :			2.936E+02	2.936E+02			

Grand Total Activity : 6.285E+02 6.285E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	3.034E+02	3.034E+02	24.56	OK
	302.84	17.80	4.915E+00	4.331E+02	4.331E+02	51.46	OK
	356.01	60.00	6.963E+00	3.625E+02	3.625E+02	23.86	OK

Final Mean for 3 Valid Peaks = 3.349E+02+/- 5.473E+01 (16.34%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	2.936E+02	2.936E+02	36.60	OK

Final Mean for 1 Valid Peaks = 2.936E+02+/- 1.075E+02 (36.60%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	3.349E+02	5.473E+01	3.808E+01	6.250E+00	8.795
TH-234	2.936E+02	1.075E+02	1.162E+02	3.724E+00	2.526

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-4.540E+00	2.565E+01	4.254E+01	1.328E+01	-0.107
CD-109	1.807E+02	2.378E+02	4.069E+02	5.264E+01	0.444
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	4.801E+01	6.552E+01	1.117E+02	1.360E+01	0.430
AM-241	6.591E+00	6.249E+00	1.165E+01	2.732E-01	0.566

JP
8-29-05

VAX/VMS Peak Search Report Generated 29-AUG-2005 06:19:41.12

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809414_GE1_BAFIL_87557.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL11
Deposition Date :
Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 06:14:26
Sample ID : 0508094-14 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE1 Detector Geometry: BAFIL
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	4	62.44	97	30	2.54	62.26	58	18	3.23E-01	14.2	1.84E+00
2	4	66.89	36	20	2.09	66.71	58	18	1.21E-01	28.3	
3	0	81.56	283	50	1.84	81.39	76	11	9.44E-01	7.6	
4	0	95.10	23	37	1.41	94.93	90	8	7.74E-02	50.2	
5	0	113.01	110	23	2.75	112.85	107	13	3.67E-01	13.1	
6	0	278.75	18	12	2.82	278.62	274	7	5.91E-02	40.4	
7	1	301.12	11	2	1.88	301.00	299	15	3.66E-02	34.1	7.34E+00
8	1	308.11	17	3	2.08	307.99	299	15	5.61E-02	32.3	
9	1	332.12	7	2	1.90	332.00	330	13	2.27E-02	52.9	3.73E+00
10	1	338.12	7	8	1.90	338.00	330	13	2.44E-02	83.1	
11	4	352.30	6	0	2.10	352.19	351	10	1.99E-02	31.3	2.22E-01
12	4	356.65	196	4	1.84	356.54	351	10	6.55E-01	7.3	
13	2	384.15	33	10	1.98	384.05	382	9	1.09E-01	22.9	2.28E+00
14	2	387.51	62	24	2.15	387.40	382	9	2.05E-01	19.9	
15	0	415.74	24	5	5.56	415.64	411	10	7.99E-02	26.9	
16	0	437.63	48	2	1.92	437.54	434	7	1.61E-01	15.1	
17	0	468.36	11	0	1.81	468.27	466	5	3.67E-02	30.2	

Summary of Nuclide Activity
Sample ID : 0508094-14

Page : 2
Acquisition date : 29-AUG-2005 06:14:26

Total number of lines in spectrum 17
Number of unidentified lines 13
Number of lines tentatively identified by NID 4 23.53%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.089E+02	4.090E+02	0.633E+02	15.48	
Total Activity :			4.089E+02	4.090E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	3.914E+02	3.914E+02	1.127E+02	28.78	
Total Activity :			3.914E+02	3.914E+02			

Grand Total Activity : 8.004E+02 8.004E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	3.941E+02	3.941E+02	22.79	OK
	302.84	17.80	4.915E+00	1.131E+02	1.132E+02	74.12	<<WM N-Sigma
	356.01	60.00	6.963E+00	4.236E+02	4.237E+02	21.06	OK

Final Mean for 2 Valid Peaks = 4.090E+02+/- 6.330E+01 (15.48%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.914E+02	3.914E+02	28.78	OK

Final Mean for 1 Valid Peaks = 3.914E+02+/- 1.127E+02 (28.78%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.090E+02	6.330E+01	3.528E+01	5.792E+00	11.591
TH-234	3.914E+02	1.127E+02	1.021E+02	3.272E+00	3.833

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-1.062E+01	2.494E+01	3.915E+01	1.222E+01	-0.271
CD-109	-8.335E+01	3.698E+02	4.703E+02	6.084E+01	-0.177
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	-5.043E+00	9.991E+01	1.327E+02	1.616E+01	-0.038
AM-241	1.036E+01	6.536E+00	1.265E+01	2.968E-01	0.819

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809415_GE1_BAFIL_87558.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : VPSCR081705SL12
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 06:20:12
 Sample ID : 0508094-15 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	3	62.56	78	37	2.32	62.38	58	13	2.60E-01	17.8	7.19E-01
2	3	66.60	16	36	2.32	66.42	58	13	5.36E-02	78.2	
3	0	81.87	256	69	2.09	81.70	76	12	8.54E-01	9.0	
4	0	111.40	61	65	1.92	111.23	107	10	2.03E-01	28.2	
5	0	192.01	15	18	2.02	191.86	189	7	4.83E-02	54.6	
6	0	276.89	20	9	1.23	276.76	276	5	6.80E-02	33.9	
7	1	303.31	70	8	1.99	303.19	298	14	2.32E-01	13.8	6.68E-01
8	1	308.31	10	6	2.08	308.19	298	14	3.28E-02	57.8	
9	0	335.41	37	10	2.24	335.29	328	13	1.24E-01	23.9	
10	0	356.71	194	8	2.20	356.60	351	11	6.46E-01	7.7	
11	2	384.51	39	8	2.32	384.40	381	14	1.30E-01	25.3	1.21E+00
12	2	387.70	83	5	2.32	387.60	381	14	2.76E-01	14.3	
13	2	391.46	15	1	2.32	391.36	381	14	4.94E-02	57.4	
14	1	415.17	14	0	2.12	415.08	413	13	4.50E-02	28.7	1.64E+00
15	1	419.01	11	2	2.12	418.91	413	13	3.82E-02	37.3	
16	1	422.29	7	3	2.13	422.19	413	13	2.40E-02	59.3	
17	0	437.67	42	0	2.20	437.57	434	8	1.40E-01	15.4	

Summary of Nuclide Activity
Sample ID : 0508094-15

Page : 2
Acquisition date : 29-AUG-2005 06:20:12

Total number of lines in spectrum 17
Number of unidentified lines 13
Number of lines tentatively identified by NID 4 23.53%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.014E+02	4.015E+02	0.616E+02	15.35	
Total Activity :			4.014E+02	4.015E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	3.150E+02	3.150E+02	1.133E+02	35.96	
Total Activity :			3.150E+02	3.150E+02			

Grand Total Activity : 7.165E+02 7.165E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	3.564E+02	3.565E+02	24.69	OK
	302.84	17.80	4.915E+00	7.177E+02	7.177E+02	40.18	OK
	356.01	60.00	6.963E+00	4.179E+02	4.179E+02	21.65	OK

Final Mean for 3 Valid Peaks = 4.015E+02+/- 6.164E+01 (15.35%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.150E+02	3.150E+02	35.96	OK

Final Mean for 1 Valid Peaks = 3.150E+02+/- 1.133E+02 (35.96%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.015E+02	6.164E+01	3.586E+01	5.887E+00	11.195
TH-234	3.150E+02	1.133E+02	1.102E+02	3.531E+00	2.859

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-4.234E+01	2.952E+01	3.551E+01	1.109E+01	-1.193
CD-109	-8.047E+01	2.921E+02	4.716E+02	6.100E+01	-0.171
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	1.650E+00	8.197E+01	1.380E+02	1.681E+01	0.012
AM-241	7.241E+00	6.590E+00	1.222E+01	2.867E-01	0.593

7P
29-05

VAX/VMS Peak Search Report Generated 29-AUG-2005 06:31:12.10

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809416_GE1_BAFIL_87559.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : VPSCR081705SL13
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 06:25:54
 Sample ID : 0508094-16 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.35	61	42	1.94	62.17	59	6	2.04E-01	21.1	
2	0	66.76	40	39	2.08	66.58	65	6	1.34E-01	30.2	
3	0	81.80	291	28	1.97	81.62	78	7	9.70E-01	6.6	
4	0	94.58	21	46	1.86	94.41	89	9	7.00E-02	62.7	
5	0	112.09	63	38	2.35	111.93	108	7	2.09E-01	20.7	
6	0	277.94	31	4	2.46	277.81	273	12	1.02E-01	23.9	
7	0	303.94	37	14	1.84	303.81	300	9	1.23E-01	24.4	
8	0	336.29	34	8	2.40	336.17	332	11	1.15E-01	23.4	
9	1	353.11	9	1	1.91	353.00	352	9	3.02E-02	26.4	9.63E+00
10	1	356.92	194	5	1.87	356.81	352	9	6.48E-01	7.3	
11	0	365.81	10	5	2.00	365.70	362	6	3.22E-02	50.7	
12	4	385.00	52	6	2.81	384.89	381	15	1.72E-01	22.5	1.84E+00
13	4	387.67	77	3	2.14	387.57	381	15	2.56E-01	15.2	
14	4	391.97	16	0	2.58	391.87	381	15	5.34E-02	52.2	
15	2	414.69	17	1	2.33	414.59	411	15	5.50E-02	30.9	9.01E-01
16	2	418.50	11	2	2.34	418.41	411	15	3.78E-02	46.8	
17	0	437.80	48	0	1.64	437.71	435	6	1.60E-01	14.4	
18	0	468.34	10	5	1.76	468.25	465	7	3.37E-02	48.7	

Summary of Nuclide Activity
Sample ID : 0508094-16

Page : 2
Acquisition date : 29-AUG-2005 06:25:54

Total number of lines in spectrum	18	
Number of unidentified lines	14	
Number of lines tentatively identified by NID	4	22.22%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.096E+02	4.096E+02	0.595E+02	14.52	
Total Activity :			4.096E+02	4.096E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	2.471E+02	2.471E+02	1.049E+02	42.47	
Total Activity :			2.471E+02	2.471E+02			

Grand Total Activity : 6.567E+02 6.567E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	4.048E+02	4.048E+02	21.43	OK
	302.84	17.80	4.915E+00	3.812E+02	3.813E+02	56.83	OK
	356.01	60.00	6.963E+00	4.193E+02	4.193E+02	21.02	OK

Final Mean for 3 Valid Peaks = 4.096E+02+/- 5.946E+01 (14.52%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	2.471E+02	2.471E+02	42.47	OK

Final Mean for 1 Valid Peaks = 2.471E+02+/- 1.049E+02 (42.47%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.096E+02	5.946E+01	3.808E+01	6.250E+00	10.758
TH-234	2.471E+02	1.049E+02	1.469E+02	4.706E+00	1.682

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-2.535E+01	2.489E+01	3.827E+01	1.195E+01	-0.662
CD-109	1.385E+02	3.289E+02	4.886E+02	6.321E+01	0.284
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	-4.891E+01	1.083E+02	1.298E+02	1.581E+01	-0.377
AM-241	3.102E+00	6.456E+00	1.132E+01	2.655E-01	0.274

JJP
8/29/05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809417_GE1_BAFIL_87560.CNF
 Analyses by : PEAK V16.9 PEAKEFF V2.2
 Client ID : VPSCR081705SL14
 Deposition Date :
 Sample Date : 29-AUG-2005 00:00:00 Acquisition date : 29-AUG-2005 06:31:34
 Sample ID : 0508094-17 Sample Quantity : 1.00000E+00 FILTER
 Sample type : FILTER Sample Geometry : 0
 Detector name : GE1 Detector Geometry: BAFIL
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
 Start channel : 25 End channel : 4096
 Sensitivity : 3.00000 Gaussian : 10.00000
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	5	62.24	70	53	2.80	62.06	58	16	2.33E-01	21.3	1.99E+00
2	5	66.50	37	37	2.56	66.32	58	16	1.25E-01	39.3	
3	0	81.76	218	65	1.96	81.58	77	11	7.27E-01	10.0	
4	0	93.80	25	41	2.12	93.63	89	9	8.17E-02	51.0	
5	4	112.57	50	29	2.14	112.41	109	12	1.68E-01	21.6	3.38E+00
6	4	116.99	21	22	2.30	116.82	109	12	7.05E-02	51.6	
7	0	142.72	26	22	3.79	142.56	139	8	8.79E-02	36.4	
8	0	163.94	21	38	5.81	163.78	157	14	7.02E-02	66.1	
9	0	277.83	26	6	2.13	277.70	274	9	8.58E-02	26.7	
10	0	303.99	47	14	2.03	303.87	301	9	1.57E-01	19.7	
11	1	334.31	32	4	2.09	334.19	330	12	1.08E-01	22.2	8.30E-01
12	1	337.93	10	6	2.09	337.81	330	12	3.35E-02	59.5	
13	0	356.72	184	4	2.03	356.61	354	7	6.12E-01	7.6	
14	0	366.57	10	11	1.87	366.46	362	9	3.40E-02	66.6	
15	0	377.05	16	5	3.18	376.94	371	10	5.29E-02	36.5	
16	5	384.27	30	4	3.03	384.16	382	9	9.93E-02	24.3	3.06E+00
17	5	387.36	45	18	2.35	387.25	382	9	1.51E-01	23.7	
18	0	391.82	15	12	1.35	391.72	391	5	4.90E-02	46.0	
19	0	417.09	19	8	1.79	416.99	413	9	6.17E-02	34.7	
20	0	437.85	41	2	1.66	437.75	434	7	1.38E-01	16.4	
21	0	468.86	6	1	1.72	468.78	466	5	1.93E-02	50.6	
22	0	511.41	8	1	1.67	511.34	509	5	2.54E-02	42.7	

Summary of Nuclide Activity
Sample ID : 0508094-17

Page : 2
Acquisition date : 29-AUG-2005 06:31:34

Total number of lines in spectrum	22	
Number of unidentified lines	18	
Number of lines tentatively identified by NID	4	18.18%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	3.542E+02	3.542E+02	0.563E+02	15.89	
Total Activity :			3.542E+02	3.542E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	2.826E+02	2.826E+02	1.213E+02	42.94	
Total Activity :			2.826E+02	2.826E+02			

Grand Total Activity : 6.367E+02 6.367E+02

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	3.034E+02	3.034E+02	26.12	OK
	302.84	17.80	4.915E+00	4.847E+02	4.847E+02	49.13	OK
	356.01	60.00	6.963E+00	3.957E+02	3.957E+02	21.43	OK

Final Mean for 3 Valid Peaks = 3.542E+02+/- 5.626E+01 (15.89%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	2.826E+02	2.826E+02	42.94	OK

Final Mean for 1 Valid Peaks = 2.826E+02+/- 1.213E+02 (42.94%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	3.542E+02	5.626E+01	4.307E+01	7.071E+00	8.222
TH-234	2.826E+02	1.213E+02	1.219E+02	3.906E+00	2.318

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity K.L. (pCi/FILTER) Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	2.639E+00	2.582E+01	4.497E+01	1.404E+01	0.059
CD-109	-4.582E+01	3.261E+02	4.269E+02	5.523E+01	-0.107
PA-231	0.000E+00	0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00	0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	-1.915E+01	8.970E+01	1.152E+02	1.402E+01	-0.166
AM-241	1.191E+01	7.033E+00	1.353E+01	3.175E-01	0.880